

U.S. Fish & Wildlife Service

**Recovery Plan for
Howell's Spectacular Thelypody
(*Thelypodium howellii* ssp. *spectabilis*)**



Cover illustration of *Thelypodium howellii* ssp. *spectabilis* by Edna Rey-Vizgirdas, used with permission.

RECOVERY PLAN
FOR
HOWELL'S SPECTACULAR THELYPODY

(Thelypodium howellii ssp. spectabilis)

Region 1
U.S. Fish and Wildlife Service
Portland, Oregon

Approved:_____

Regional Director, U.S. Fish and Wildlife Service

Date:_____

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The draft recovery plan was prepared by Edna Rey-Vizgirdas with the assistance of Mara Johnson, U.S. Fish and Wildlife Service volunteer, and James Kagan, Oregon Natural Heritage Program botanist. The recovery plan was finalized by Johnna Roy, U.S. Fish and Wildlife Service.

EXECUTIVE SUMMARY

Current Status: Howell's spectacular thelypody (*Thelypodium howellii* ssp. *spectabilis*), thelypody, was listed as a threatened species on June 25, 1999 (64 FR 28393). This taxon is endemic to the Baker-Powder River Valley in eastern Oregon. It is currently found in five populations in Baker and Union Counties, Oregon. It formerly also occurred in the Willow Creek Valley in Malheur County.

Habitat Requirements and Limiting Factors: Howell's spectacular thelypody is a herbaceous biennial that occurs in mesic, alkaline habitats in the Baker-Powder River Valley region in northeast Oregon. Sites range from approximately 1,000 meters (3,000 feet) to 1,100 meters (3,500 feet) in elevation. The thelypody is threatened by a variety of factors including habitat destruction and fragmentation from agricultural and urban development, seasonal grazing by domestic livestock, competition from non-native vegetation, and alterations of wetland hydrology.

Recovery Priority Number: This plant's recovery priority is 8 on a scale of 1 to 18, reflecting a species with a moderate degree of threat and a high potential for recovery.

Recovery Objective: To recover the species to the point where it can be delisted.

Recovery Criteria: Delisting will be considered when all of the following criteria have been met:

1. At least five stable or increasing thelypody populations are distributed throughout its extant or historic range. Populations must be naturally reproducing with stable or increasing trends for 10 years.

2. All five populations are located on permanently protected sites. Permanently protected sites are either owned by a State or Federal agency or a private conservation organization, or protected by a permanent conservation easement that commits present and future landowners to the conservation of the species.
3. Management plans have been developed and implemented for each site that specifically provide for the protection of the thelypody and its habitat.
4. A post-delisting monitoring plan is in place that will monitor the status of the thelypody for at least 5 years at each site.

Actions Needed:

1. Protect habitat and implement actions that may be necessary to eliminate or control threats. Manage habitat to maintain or enhance viable populations of thelypody.
2. Monitor thelypody population trends and habitat conditions.
3. Conduct research essential to the conservation of the species.
4. Conduct surveys in potential habitat areas. Manage and protect any newly discovered thelypody populations.
5. Collect seeds and establish a long-term seed storage bank for thelypody.
6. If warranted, establish and maintain new populations of thelypody in suitable and protected habitat.
7. Validate and revise recovery objectives.

Estimated Cost of Recovery: Partial costs are estimated for some of the tasks and needs for the next 15 fiscal years to be \$768,000. Each fiscal year begins on October 1. Total estimated recovery costs will likely increase as new information is received and as ongoing biological studies are completed.

Date of Recovery: If recovery actions are prompt and effective, delisting might be possible as early as 2015.

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PART I. INTRODUCTION

A. BRIEF OVERVIEW

Howell's spectacular thelypody (*Thelypodium howellii* ssp. *spectabilis*), thelypody, was thought to be extinct until rediscovered by James Kagan in 1980 near North Powder, Oregon (Kagan 1986). This subspecies was listed as threatened by the us in 1999 (64 FR 28393).

Only five thelypody populations are currently known, all in northeast Oregon (Baker and Union Counties). It formerly also occurred in the Willow Creek Valley in Malheur County, less than 40 kilometers (25 miles) from thelypody habitat near Baker (J. Kagan, in litt. 2000).

Thelypody is threatened by several factors including habitat destruction and fragmentation from agricultural and urban development, grazing by domestic livestock, competition from non-native vegetation, and alteration of wetland hydrology (U.S. Fish and Wildlife Service 1999).

B. TAXONOMY

Thelypodium howellii ssp. *spectabilis* is a member of the mustard family (Brassicaceae). It was first described by Peck in 1932 from a specimen collected in 1927 near Ironside, Oregon, in Malheur County (Peck 1932). In 1973, Al-Shehbaz revised the genus and elevated the variety to subspecies status (Al-Shehbaz 1973). This subspecies is differentiated from *T. howellii* ssp. *howellii* by its larger petals and sepals and paired filaments that are not united (Al-Shehbaz 1973, Kagan 1986). These two subspecies' habitats do not overlap though they both occur in eastern Oregon (Kagan 1986).

C. SPECIES DESCRIPTION AND LIFE HISTORY

Howell's spectacular thelypody is a herbaceous biennial that grows to approximately 60 centimeters (2 feet) tall. The basal leaves are approximately 5 centimeters (2 inches) long with wavy edges and are arranged in a rosette. Stem leaves are shorter, narrow, and have smooth edges. Flowers appear in loose spikes at the ends of the stems. Flowers have four pink to purple petals approximately 1.9 centimeters (0.75 inch) in length, each of which is borne on a short 0.6 centimeter (0.25 inch) stalk. Fruits are long, slender pods (siliques) (Greenleaf 1980).

Thelypody flowers in late May through July (generally peaking in mid-June and flowering for 2 to 3 weeks) depending on weather conditions. Plants typically set seed in July (Al-Shehbaz 1973, Davis and Youtie 1995, Kagan 1986). Thelypody reproduces entirely by seed, which is dispersed by the dehiscing of siliques (splitting open of the pods to discharge the seeds). Although this taxon is self-compatible, pollination occurs primarily by insect vectors such as bumblebees (*Bombus* spp.) (Gisler and Meinke 2000). Plants can produce hundreds of flowers and thousands of seeds (Gisler and Meinke 2000).

D. HABITAT DESCRIPTION

Howell's spectacular thelypody occurs in moist alkaline meadow habitats in the Baker-Powder River Valley bottomlands in northeast Oregon (Baker and Union Counties). Populations range from approximately 1,000 meters (3,000 feet) to 1,100 meters (3,500 feet) in elevation. All remaining thelypody populations occur within or directly adjacent to agricultural fields or urban areas.

Soils are fine pluvial-deposited alkaline clay mixed with recent alluvial silts (Kagan 1986). Soils are part of the Umapine series, which consists of deep,

somewhat poorly drained alkaline soils on low terraces (Baker County Soil Survey 1997). Vegetation characteristic of Umapine soils is dominated by Great Basin wildrye (*Elymus cinereus*), with lesser amounts of inland saltgrass (*Distichlis stricta*) and greasewood (*Sarcobatus vermiculatus*) (A. Gehrig, in litt. 1999).

Thelypody seems to thrive on sites that are ephemerally moist, and high spring water tables may be essential to the thelypody (Davis and Youtie 1995).

Thelypody may be dependent on periodic spring flooding since it appears to colonize areas adjacent to streams that have flooded (Kagan 1986). If moisture conditions stay high later in the spring or summer, conditions can result that allow sedges and rushes to outcompete thelypody (Davis and Youtie 1995). Thelypody is found in and around woody shrubs, on knolls, and on seasonally moist saline terraces along the edge of wet meadow habitat between the knolls (Kagan 1986). These alkaline knolls and terraces were formed as a result of past water flow from meandering stream channels and periodic flood events (Davis and Youtie 1995).

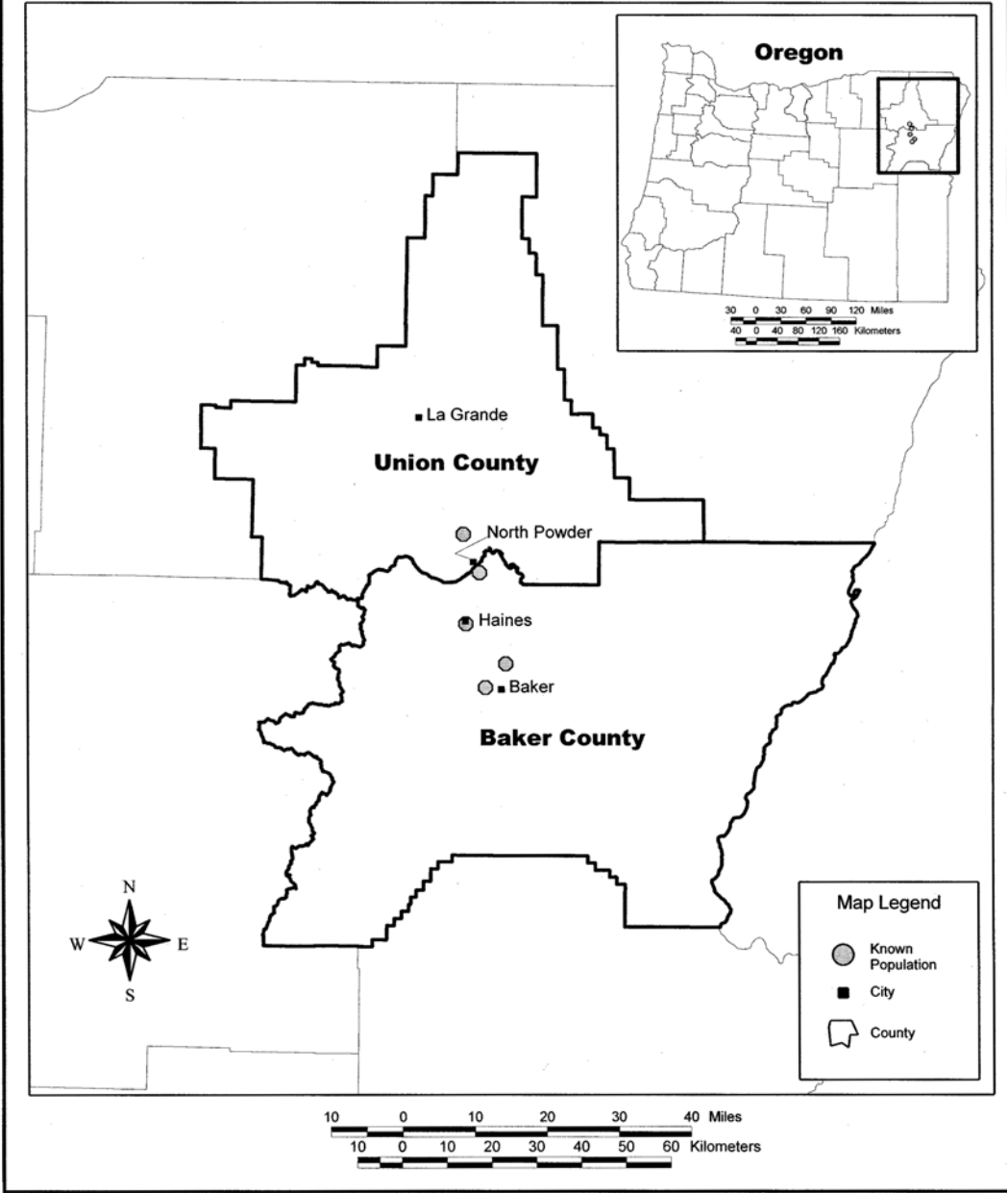
Associated plant species include greasewood (*Sarcobatus vermiculatus*), green rabbitbrush (*Chrysothamnus viscidiflorus*), Great Basin wildrye (*Elymus cinereus*), alkali saltgrass (*Distichlis stricta*), and alkali bluegrass (*Poa juncifolia*). Non-native species such as tumble mustard (*Sisymbrium altissimum*), clasping pepperweed (*Lepidium perfoliatum*), cheatgrass (*Bromus tectorum*), and thistles (*Cirsium* spp.) may also be found in or adjacent to thelypody habitat.

E. HISTORIC AND CURRENT RANGE AND POPULATION STATUS

Howell's spectacular thelypody was historically known from the Baker-Powder River Valley in Baker and Union Counties as well as the Willow Creek Valley near Ironside in Malheur County. Prior to European settlement, this species probably occurred as a large, naturally occurring population in the Baker-Powder River Valley (Kagan 1986). Thelypody was thought to have been extinct from 1969 to 1980, when it was rediscovered by Oregon Natural Heritage Program botanist James Kagan (Davis and Youtie 1995). Plants at the type locality in Malheur County have not been relocated since 1969 and are considered to be extirpated by activities associated with agricultural development (Kagan, in litt. 2000).

Howell's spectacular thelypody is currently known from only 5 populations (11 sites) in the Baker-Powder River Valley in Baker and Union Counties (Figure 1). These sites range in size from 0.01 hectare (0.03 acre) to 16.8 hectares (41.4 acres). All sites occur on privately owned lands. Of the 5 thelypody populations, the 2 largest populations each support over 20,000 individuals and are located near Haines and North Powder. The Haines population consists of three sites in and adjacent to the town of Haines. The North Powder population consists of five sites near the town of North Powder. Another thelypody population that contains approximately 300 plants is found at Clover Creek in an area used primarily for agriculture and livestock grazing. The two remaining thelypody populations are located near Baker City. The Baker City North population supports 40 plants, and the Pocahontas Road population (located west of Baker City) contains 250 to 300 plants.

Figure1. Distribution of *Thelypodium howellii* ssp. *spectabilis*



F. REASONS FOR LISTING: SUMMARY OF FACTORS AFFECTING THE SPECIES

Threats to Howell's spectacular thelypody include urban and agricultural development, livestock grazing, hydrological alterations, non-native species invasion, habitat fragmentation, fire suppression, herbicide and pesticide use, and road construction and maintenance. The following information is adapted from the final rule to list this species as threatened (64 FR 28393; Appendix A).

1. The present or threatened destruction, modification, or curtailment of its habitat or range

Most of this species' habitat has been altered or destroyed due to agricultural and urban development, livestock grazing, and associated hydrological alterations (Kagan 1986). Urban development, agricultural activities, and livestock grazing threaten most of the remaining habitat for this species. All thelypody sites in the vicinity of Haines are threatened by urban development and human disturbance (*e.g.*, by trampling and off-road vehicle use) in addition to grazing and agricultural activities. Road construction also threatens thelypody habitat in the vicinity of Haines (D. Carter, pers. comm. 2000). Road maintenance activities (including mowing, grading, and herbicide use) are an ongoing threat to this species in the vicinity of Haines and North Powder, although the Oregon Department of Transportation strives to avoid impacts to this species through its maintenance activities.

Thelypody habitat is adversely affected by altered hydrology primarily related to historic and current activities such as conversion of floodplain to agricultural hay production, and flood control measures such as levees and dikes that have restricted stream channels from meandering and prevented periodic flooding. Modifying the soil moisture and intensity and frequency of flooding events can significantly alter habitat suitability. Although thelypody may be adapted to flooding and other natural disturbances, if moisture stays high in later spring or

summer, conditions can result that allow sedges, rushes and non-native vegetation to outcompete thelypody (Davis and Youtie 1995). Irrigation tends to increase soil moisture levels and can also increase soil salinity (Davis and Youtie 1995) making the habitat less suitable for this plant.

2. Overutilization for commercial, recreational, scientific, or educational purposes

This factor is not considered to be a threat since thelypody is not a source for human food or of commercial horticulture interest.

3. Disease or predation

Howell's spectacular thelypody is palatable to livestock. The effects of grazing on this species depend on the intensity and timing of grazing. Livestock grazing during the active growing season (generally April through July) can adversely impact reproduction when thelypody flowering stalks are consumed and the annual seed production is reduced (Kagan 1986). In particular, spring livestock grazing can seriously affect this species (Kagan, in litt. 2000). In some cases, fall grazing may be compatible with the maintenance of thelypody since it occurs when the species is dormant (Kagan, in litt. 2000).

4. The inadequacy of existing regulatory mechanisms

Howell's spectacular thelypody is listed as endangered by the State of Oregon (Oregon Department of Agriculture). However, the State Endangered Species Act does not provide protection for species on private land. All thelypody populations are found on private lands. One parcel containing a thelypody population was purchased in 2001 and is under public ownership.

5. Other natural or manmade factors affecting its continued existence

Other factors, including mowing, herbicide use, non-native plant species, and naturally occurring events, threaten the existence of thelypody. For example, mowing can negatively affect this species if it occurs during the growing season prior to seed set. Annual mowing has impacted the thelypody habitat at the Haines Rodeo grounds. In addition, a portion of the thelypody habitat at this site was destroyed by heavy equipment (Kagan, in litt. 2000).

Naturally occurring events such as drought or fire are also a threat to this species. Since the existing thelypody populations are small and fragmented by agricultural and urban development, the effects of such naturally occurring events are typically magnified. Habitat fragmentation can also inhibit population expansion or recovery from such events. Competition from non-native plants such as teasel (*Dipsacus sylvestris*) is also considered to be a threat to thelypody (Larkin and Salzer 1992, Davis and Youtie 1995).

The use of dicot-specific herbicides also threatens this species when overspraying occurs at sites adjacent to fields where crops such as barley (*Hordeum* spp.) and wheat (*Triticum* spp.) are grown or adjacent to highways (Kagan, pers. comm. 1997). Spraying to control noxious weeds can also threaten thelypody.

G. CONSERVATION EFFORTS

Previous Recovery Efforts

We are currently working with involved agencies and landowners to periodically survey and monitor thelypody populations and develop management strategies. All involved parties and landowners have been notified of the importance of protecting the habitat for the remaining thelypody populations. At some sites, livestock grazing in thelypody habitat is being addressed by working directly with landowners to adjust seasonal use and through fence construction to limit livestock trespass.

The Oregon Natural Heritage Program and The Nature Conservancy are developing a monitoring and management plan for a site near North Powder that is protected by a permanent conservation easement. This site has been fenced to exclude livestock grazing. The Nature Conservancy has been conducting monitoring and weed control at another thelypody site near Wolf Creek since 1980. Refer to the “Conservation Efforts by Site” section for more information on these three sites.

The Oregon Department of Transportation currently considers potential impacts to thelypody associated with road maintenance activities at three sites where thelypody is present within highway rights-of-way. Locations of thelypody along road sides have been inconspicuously marked so that crews can avoid destruction of plants during maintenance activities (N. Testa, in litt. 2000).

Thelypody seeds have been collected and are being stored at the Berry Botanical Garden (Raven 2000). Seeds have been collected from two sites near Haines, one site at North Powder, and one site at Clover Creek. Additional seeds may be collected in the future as needed for long-term storage and habitat restoration or

population enhancement efforts. We are also working with Oregon Department of Agriculture biologists to conduct research on the reproductive ecology and cultivation methods for thelypody.

State and Federal Designations

Howell's spectacular thelypody is listed as endangered by the Oregon Department of Agriculture. Plants listed as threatened or endangered under the Oregon Endangered Species Act are protected by law only on State lands. The State Endangered Species Act does not provide protection for species on private land.

Conservation Efforts By Site: (This section includes only those sites where efforts such as habitat protection measures or monitoring have been implemented.)

Conservation Easement, North Powder: Thelypody is protected by a permanent conservation easement at this site located near the town of North Powder (M. Smith, in litt. 1991). The Oregon Department of Fish and Wildlife previously managed this easement. However, the Bureau of Land Management assumed responsibilities as easement manager in 1999 (Button, pers. comm. 2000). The Oregon Natural Heritage Program and The Nature Conservancy are developing a monitoring plan for thelypody that will provide information on population trends. Portions of the easement that support thelypody habitat have been fenced to exclude livestock grazing. We are working together with the Bureau of Land Management and the landowner to maintain fencing at this site.

Wolf Creek Site, North Powder: In 1980, the Nature Conservancy entered into a 10-year lease agreement with a landowner at Wolf Creek, which contains approximately 0.2 hectare (0.6 acre) of thelypody habitat. A

cattle enclosure was constructed and thelypody has been monitored at this site since 1983 (Larkin and Salzer 1992). The lease was renewed in 1991 for 5 years ending in 1996. A plan was developed in 1995 to outline actions necessary for the conservation of this species. Management actions have included fencing, fence maintenance, non-native species control, monitoring, and demographic (population characteristics) studies (Davis and Youtie 1995, Larkin and Salzer 1992). The Nature Conservancy no longer has a lease agreement at this site; however, the thelypody habitat is fenced and non-native plant species (*i.e.*, teasel) control is still being conducted (Youtie, pers. comm. 2000).

Southeast Haines: Located on approximately 20 hectares (50 acres) just southeast of the town of Haines, this site supports a large thelypody population. At least 10,000 to 20,000 plants were observed at this site in 2000 (K. Helgersen, in litt. 2000). The area was previously going to be developed as a racetrack; however, the Federal Highway Administration is currently in the process of purchasing the property for permanent preservation of thelypody habitat values. Ownership of the site will be transferred to Baker County (D. Sell, in litt. 2000). We will continue to work with staff from the Federal Highway Administration, Baker County, and other agencies regarding future management actions at this site.

PART II. RECOVERY

A. OBJECTIVES

The objective of the recovery program is to delist this species. In order to delist, there must be at least five self-sustaining thelypody populations throughout its extant and historic range. These five populations should be permanently protected, *i.e.*, on land owned and/or managed by a government or private conservation organization, or protected by a permanent conservation easement that commits present and future landowners to the conservation of the species. Populations should either be stable or increasing.

These five permanently protected populations should include as much of the currently occupied habitat as possible. However, since all of the thelypody sites are on private land, permanent protection of all sites may not be feasible. Therefore, the long-term survival of thelypody is likely to depend on the establishment of new populations in areas that are (or can be) permanently protected.

Delisting will be considered when all the following conditions are met:

1. At least five stable or increasing thelypody populations are distributed throughout its extant and historic range. Populations must be naturally reproducing with stable or increasing trends for 10 years.
2. All populations are located on permanently protected sites. Permanently protected sites are either owned by a State or Federal agency or a private conservation organization, or protected by a permanent conservation easement that commits present and future landowners to the conservation of the species.

3. Management plans have been developed and implemented for each site that specifically provide for the protection of thelypody and its habitat.
4. A post-delisting monitoring plan is in place that will monitor the status of thelypody for at least 5 years at each site.

See Table 1 for summary of threats and relation to recovery tasks.

B. RECOVERY TASKS NARRATIVE

1 Protect important habitat and control threats

Protect important (occupied and potentially suitable) habitat and implement actions that may be necessary to eliminate or control threats. Manage habitat to maintain or enhance viable populations of Howell's spectacular thelypody (thelypody). Habitat should be managed to allow for the maintenance of natural ecosystem functions and processes and contribute to the long-term preservation of this species.

Ensuring that thelypody habitat will be permanently protected is the greatest challenge towards delisting this species. Existing thelypody sites should be prioritized so that protection and conservation efforts can be focused on those sites supporting the highest quality habitat and/or the largest populations. Opportunities for establishing additional conservation easements or land acquisition will need to be identified.

1.1 Prioritize unprotected sites for protection efforts

All known thelypody sites have been identified and mapped. One site (located near North Powder) has a perpetual conservation easement in place. One site near Haines is in the process of being acquired by Baker County (with support from the Federal Highways Administration) for permanent protection and enhancement of thelypody habitat. The other sites have no current formal or permanent protection. These sites vary in acreage,

population size (*i.e.*, number of plants), and habitat quality. Some landowners have expressed an interest in protecting this species. For example, The Nature Conservancy has worked with a landowner near North Powder on voluntary conservation activities for this species.

Criteria for prioritizing the unprotected sites should be developed and should include the following: 1) habitat quality and extent, 2) population size and population viability of thelypody, 3) threats and current or projected land uses, and 4) feasibility of working with the landowners. Existing sites have not yet been formally prioritized.

1.2 Promote interim protection of thelypody sites on private lands and continue to promote cooperative relationships with landowners

It may not be possible to achieve permanent protection on all currently occupied sites since they are on private lands. In the interim, voluntary protection measures should be pursued with landowners until sufficient permanent protection is achieved. All landowners of the unprotected sites have been informed that the species exists on their land and the significance of the land to the species. Conservation agreements should be pursued with willing landowners that include site specific recommendations.

Conservation actions that could be implemented under these agreements may include fencing, seed collection, weed control, livestock management, and monitoring. Developing positive working relationships with landowners will assist in implementing conservation actions and may contribute to the long-term protection of thelypody. Funding for conservation actions such as fencing or habitat restoration may be available through our Partners for Fish and Wildlife program or other sources.

1.3 Seek permanent protection for unprotected thelypody habitat through perpetual conservation easements or land acquisition

Pursue conservation easements on, or acquisition of, private lands with willing landowners based on the priority of each site as discussed above. Research funding sources and, when possible, secure funds for purchasing conservation easements or acquiring land.

1.4 Characterize thelypody habitat

Some information has been gathered on habitat characteristics such as associated species and soil type, but additional research is needed. The results of research to characterize thelypody habitat should be used to define and locate potential habitat. Areas containing potential habitat should be inventoried for the presence of thelypody, and may be important as future sites for possible reintroduction of this species (see tasks 1.5, 2, and 3.2).

1.5 Identify and protect potentially suitable habitat within the historic range of thelypody where this species does not currently exist

If an insufficient number of existing sites receive permanent protection, it may be necessary to reintroduce thelypody to other sites that support suitable habitat where protection can be secured. The Bureau of Land Management and the Forest Service should identify potentially suitable habitat for thelypody on lands within their jurisdiction using tools such as geographic information systems (GIS) and soils information. Land managers of areas that may contain potentially suitable thelypody habitat should be notified immediately of the importance of the habitat, and inventory and protection of those areas should be implemented.

In addition to the Baker Valley, potential habitat for thelypody may occur in the Burnt River Valley or the Willow Creek Valley

(Kagan, in litt. 2000). Information on habitat characteristics should be disseminated to all appropriate agencies, and suitable sites should be identified. Development of such sites should be avoided and threats to the habitat should be controlled.

1.6 Identify and control threats

As discussed previously, threats to this species include livestock grazing, urban and agricultural development and their associated activities, road maintenance and construction, hydrological alterations, non-native species invasion, habitat fragmentation, and herbicide and pesticide use. Only one site is currently being managed to control threats and provide for the long-term conservation and enhancement of thelypody. The Fish and Wildlife Service should seek voluntary cooperation from landowners to protect this species by reducing threats until sufficient permanent protection has been achieved. For sites where permanent protection is achieved, management plans should prioritize and implement measures to control threats and provide for the long-term conservation of this species.

1.6.1 Manage livestock grazing

Livestock grazing occurs within or adjacent to all five thelypody populations. Grazing should be managed where possible by working with landowners to adjust seasonal use, and by fence construction, to limit livestock trespass in habitat occupied by thelypody. Because thelypody is palatable to livestock, livestock grazing and trampling has the potential to adversely affect this species. The effects of grazing depend on the intensity and timing of grazing and associated soil disturbance. Livestock grazing during the active growing season for thelypody (generally April through July) can adversely impact its reproduction by consuming and/or trampling flowering stalks and reducing annual seed production (Kagan 1986). It is unclear whether livestock grazing

after the active growing season (*i.e.*, fall or winter grazing) affects this species.

1.6.2 Construct and maintain fencing

Fencing should be constructed at all thelypody sites where livestock grazing or other potentially harmful activities (*e.g.*, off-road vehicle use or human trampling) are occurring or can be expected to occur in the future. In cooperation with landowners, areas to be protected by fencing should include habitat occupied by thelypody in addition to similar, unoccupied habitat into which the species may expand. Thelypody is capable of rapid expansion since it produces abundant seed and potentially will proliferate once grazing pressure has been relieved (Larkin and Salzer 1992). Ongoing inspection and maintenance of fences is necessary.

1.6.3 Control non-native plant species invasion

Competition from non-native plant species including teasel (*Dipsacus sylvestris*), bull thistle (*Cirsium vulgare*), Canada thistle (*C. canadensis*), and yellow sweet clover (*Melilotus officinalis*) threatens the survival of thelypody at all sites. The rapid expansion of teasel is considered a significant threat to this species (Larkin and Salzer 1992). The Nature Conservancy has conducted research on various methods for controlling non-native plant species, *e.g.*, by mowing and hand-pulling. Hand-pulling seems to be more effective than mowing at controlling teasel since it removes more of the plant (B. Youtie, pers. comm. 2000).

Population trends of non-native plants should be monitored and appropriate methods for weed control should be developed and implemented.

1.6.4 Discourage conversion of habitat to agricultural crops or urban development by informing the public of the species' status

Conversion of moist alkaline meadow dominated by greasewood, Great Basin wildrye, and alkali saltgrass habitat to agricultural production or urban uses can destroy or modify habitat for this species. Fences or other methods such as signing can be used to protect this species, if implemented with the consent of the landowner.

1.6.5 Maintain an appropriate hydrologic regime

Protect and restore floodplain hydrology. Thelypody habitat is threatened by altered hydrology primarily related to historic and current activities such as conversion of floodplain to agricultural hay production, and flood control measures such as levees and dikes that restrict stream channels from meandering and prevent periodic flooding. Modifying the intensity and frequency of flooding events and soil moisture can significantly alter habitat suitability. If moisture stays high in later spring or summer, conditions can result that allow sedges, rushes, and non-native vegetation to out compete thelypody (Davis and Youtie 1995). Irrigation tends to increase soil moisture levels and can also increase soil salinity (Davis and Youtie 1995), making the habitat less suitable for this plant. Modifications to irrigation practices to lessen impacts to thelypody habitat should be pursued.

1.6.6 Manage herbicide and pesticide use

Several thelypody sites are adjacent to fields where crops such as wheat (*Triticum spp. L.*), barley (*Hordeum vulgare L.*), and alfalfa (*Medicago sativa*) are produced. Additional thelypody sites are found along roadsides. The use of dicot-specific herbicides in such areas threatens this species where overspraying occurs (Kagan, pers. comm. 1997). Pesticide use could potentially impact

pollinators of thelypody. Spraying to control noxious weeds can also threaten thelypody.

2 Continue to survey for additional sites

Botanists have conducted surveys of potential habitat in Malheur County during the past 3 decades without relocating thelypody. However, it is possible that additional sites may exist in small fragments of habitat in Baker, Malheur, or Union Counties. These sites could be located by using a combination of aerial photographs and field surveys that target areas containing potentially suitable habitat. Local publicity regarding the status of this taxon may also be useful in locating new thelypody sites (Kagan 1986).

Moist alkaline meadow dominated by greasewood, Great Basin wildrye, and alkali saltgrass habitat that has not been converted to agriculture between 3,000 and 3,500 feet (1,000 to 1,100 meters) in elevation in Baker, Union, and Malheur Counties should be considered as potentially suitable habitat for this species. In particular, surveys for thelypody should be conducted if activities that are authorized or permitted by Federal agencies may affect this species or its habitat on these unconverted lands. As discussed previously, land managers of potentially suitable thelypody habitat should inventory and protect those areas. Such areas may be extremely important in future reintroduction efforts for thelypody.

3 Conduct essential research

Essential research needs include studying genetic variation, population biology and dynamics relative to biotic and abiotic influences, habitat requirements, and response to disturbance (Davis and Youtie 1995). Potential researchers who may be interested in conducting priority research projects should be identified.

3.1 Research effects of habitat fragmentation and population viability of thelypody

Because existing thelypody populations are small and isolated, naturally occurring events such as drought threaten this species. Small populations are also vulnerable to threats from human disturbance (*e.g.*, off-road vehicle use, trampling, etc.). In addition, habitat fragmentation severely restricts the potential for population expansion. Restoring degraded habitat areas and removing competing non-native vegetation may reduce these threats. Research on genetic variation within and among existing sites and potential for inbreeding depression should also be conducted (Davis and Youtie 1995, Kagan 1986).

3.2 Research propagation techniques and feasibility of reintroduction to protected areas containing suitable habitat

Since all but one thelypody site are located on private lands that do not have permanent protection, it may be necessary to reintroduce populations to areas that are managed for the long-term preservation of this species in order to reach the recovery goal of five protected populations. Controlled propagation techniques should be developed. Additional research on seed production, viability, longevity, and reproductive ecology may be necessary for successful reintroduction.

3.3 Develop and implement specific plans for reintroduction

If it is determined that reintroduction is necessary and feasible, a reintroduction plan should be developed that includes methods for site preparation, preparing and sowing seeds, growing and planting seedlings, and long-term maintenance and management. We are currently working with the Oregon Department of Agriculture to enhance existing thelypody sites and/or establish new sites in

protected areas that contain suitable habitat for this species (E. Rey-Vizgirdas, in litt. 2000).

3.4 Consider using prescribed fire as a management tool where appropriate

The Baker Valley is primarily an agricultural area with population centers including Baker City, Haines, and North Powder. Wildfires have been aggressively suppressed in this area. Some researchers have suggested that the natural fire regime may have reduced the abundance of species that compete for thelypody habitat (Davis and Youtie 1995). Additional research should be conducted to determine if fire can be used as a management tool in appropriate situations.

4 Develop and implement detailed monitoring plans for all sites

Specific monitoring plans should be created for each site. These plans should include information such as methods for tracking population trends and evaluating threats.

5 Collect and provide permanent storage for seeds

As discussed previously, thelypody seeds have been collected from four sites and are being stored at Berry Botanical Garden's Rare and Endangered Seed Bank. Additional seeds should be collected from as many sites as possible and permanently stored at the Berry Botanic Garden. Seeds should adequately represent the genetic diversity within the species.

6 Secure funding for recovery actions

Potential sources of funding to implement recovery actions for thelypody may include a variety of Federal, State, and/or private agencies. For example, potential funding sources include the Fish and Wildlife Service

(*e.g.*, Partners for Fish and Wildlife program, realty), Endangered Species Act incentive money, Congressional appropriations, the Natural Resources Conservation Service, The Nature Conservancy, the Bureau of Land Management, and the Forest Service (*e.g.*, for land swaps or land acquisition).

7 Revise and validate recovery objectives

The recovery objectives and measures should be revised with any new information as it becomes available. For example, the results of research conducted on reproductive ecology and habitat or population enhancement efforts for thelypody will be considered in future plan revisions. This recovery plan should be reviewed every 5 years, and updated if necessary.

Table 1. Summary of Threats and Recommended Recovery Actions.

LISTING FACTOR	THREAT	RECOVERY CRITERIA	TASK NUMBERS
A	Agricultural development and associated hydrologic alterations	1, 3	Identify and control threats, discourage conversion of habitat, protect and restore floodplain hydrology, conduct research, secure funding for recovery actions (see Tasks 1.6, 1.6.4, 1.6.5, 3, 6)
A	Urban development and human disturbance	1,3	Identify and control threats, fence out disturbance activities, discourage conversion of habitat, conduct research, secure funding for recovery actions(see Tasks 1.6, 1.6.2, 1.6.4, 3, 6)
A	Livestock grazing		see “C” below
A	Road construction and maintenance	1,3	Identify and control threats, manage herbicide use, conduct research (see Tasks 1.6, 1.6.6, 3)
A	Flood control measures and alteration of floodplain hydrology	1,3	Identify and control threats, protect and restore floodplain hydrology, conduct research, secure funding for recovery actions (see Tasks 1.6, 1.6.5, 3, 6)
C	Livestock grazing	1,3	Manage livestock grazing , fence livestock areas, conduct research, secure funding for recovery actions (see Tasks 1.6.1, 1.6.2, 3)
D	State ESA does not provide protection for plants on private lands and all thelypody populations are found on private lands	2, 3, 4	Survey and prioritize sites for protection, protect sites in the interim, and secure permanent protection through easements and acquisition, identify and protect unoccupied habitat sites, conduct research, secure funding for recovery actions (see Tasks 1.1, 1.2, 1.3, 1.4, 1.5, 2, 3, 3.1, 3.3, 4, 5, 6)
E	Mowing	1.3	Identify and control threats, conduct research, secure funding for recovery actions (see Tasks 1.6, 3, 6)
E	Herbicide use	1,3	Identify and control threats, manage herbicide use conduct research, secure funding for recovery actions (see Tasks 1.6, 1.6.6, 3)

LISTING FACTOR	THREAT	RECOVERY CRITERIA	TASK NUMBERS
E	Competition from non-native plants species	1,3,4	Identify and control threats, control non-native species invasion, conduct research, secure funding for recovery actions (see Tasks 1.6, 1.6.3, 3, 3.4, 6)
E	Naturally occurring events (drought/fire)	1,4	Conduct research, see Task 3
E	Habitat fragmentation	2, 3, 4	Identify and control threats, fence potential habitat, conduct research, collect seed, secure funding for recovery actions (see Tasks 1.6, 1.6.2, 3, 3.1, 3.3, 5, 6)

Listing Factors:

- A.** The Present or Threatened Destruction, Modification, or Curtailment Of Its Habitat or Range
- B.** Overutilization for Commercial, Recreational, Scientific, Educational Purposes (not a factor)
- C.** Disease or Predation
- D.** The Inadequacy of Existing Regulatory Mechanisms
- E.** Other Natural or Manmade Factors Affecting Its Continued Existence

Recovery Criteria

- 1.** At least five stable or increasing thelypody populations are distributed throughout its extant or historic range. Populations must be naturally reproducing with stable or increasing trends for 10 years.
- 2.** All five populations are located on permanently protected sites. Permanently protected sites are either owned by a State or Federal agency or a private conservation organization, or protected by a permanent conservation easement that commits present and future landowners to the conservation of the species.
- 3.** Management plans have been developed and implemented for each site that specifically provide for the protection of the thelypody and its habitat.
- 4.** A post-delisting monitoring plan is in place that will monitor the status of the thelypody for at least 5 years at each site.

PART III. IMPLEMENTATION SCHEDULE

The implementation schedule that follows outlines actions and estimated costs for this recovery plan. It is a guide for meeting the objectives discussed in this plan. This schedule describes and prioritizes tasks, provides an estimated time table for performance of tasks, indicates responsible agencies, and estimates costs of performing tasks. These actions, when accomplished, should recover *Thelypodium howellii* ssp. *spectabilis* (thelypody).

- Priority 1 - An action that must be taken to prevent extinction or to prevent the species from declining irreversibly.
- Priority 2 - An action that must be taken to prevent a significant decline in species population/habitat quality, or some other significant negative impact short of extinction.
- Priority 3 - All other actions necessary to provide for full recovery of the species.

LIST OF ACRONYMS

BBG	Berry Botanic Garden, Portland, Oregon
BLM	Bureau of Land Management
FWS	U.S. Fish and Wildlife Service
NRCS	Natural Resources Conservation Service
ODA	Oregon Department of Agriculture
ODOT	Oregon Department of Transportation
ONHP	Oregon Natural Heritage Program
TNC	The Nature Conservancy

* An asterisk denotes the lead responsible party

Implementation schedule for the recovery plan for Howell’s spectacular thelypody											
Task Priority	Task Number	Task Description	Task Duration (years)	Responsible Parties	Cost Estimate (in \$1,000 units)						Comments
					Total Costs	FY 01	FY 02	FY 03	FY 04	FY 05	
1	1	Protect essential habitat and control threats	15	FWS	45	3	3	3	3	3	Implementation is expected to continue after delisting.
1	1.1	Prioritize unprotected sites for protection efforts	1	FWS, TNC	1	1					
1	1.2	Promote interim protection of thelypody sites on private lands	15	FWS, TNC, NRCS	unknown ¹						Costs dependant on landowner participation. Implementation is expected to continue after delisting.
1	1.3	Secure permanent protection through conservation easements or land acquisition	15	FWS, TNC*	unknown ¹						Costs depend on site availability. Implementation is expected to continue after delisting.
1	1.4	Characterize thelypody habitat	2	FWS, ONHP*, TNC, BLM*, NRCS	5	2.5	2.5				

¹ Cost estimates will be provided by responsible agencies during implementation.

Implementation schedule for the recovery plan for Howell's spectacular thelypody											
Task Priority	Task Number	Task Description	Task Duration (years)	Responsible Parties	Cost Estimate (in \$1,000 units)						Comments
					Total Costs	FY 01	FY 02	FY 03	FY 04	FY 05	
1	1.5	Identify and protect suitable unoccupied habitat	15	FWS, BLM*, FS*	38	10	2	2	2	2	Costs depend on amount of habitat identified. Implementation is expected to continue after delisting.
1	1.6	Identify and control imminent threats	15	FWS	30	2	2	2	2	2	Implementation is expected to continue after delisting.
1	1.6.1	Manage livestock grazing	15	FWS, BLM	15	1	1	1	1	1	Implementation is expected to continue after delisting.
1	1.6.2	Construct and maintain fencing	15	FWS, BLM	unknown ¹						Costs depend on amount of fencing. Implementation is expected to continue after delisting.
1	1.6.6	Manage herbicide and pesticide use	15	FWS, County, BLM, FS	30	2	2	2	2	2	Implementation is expected to continue after delisting.
1	3	Conduct essential research	15	ONHP, ODA, TNC	110	20	15	10	10	5	Implementation is expected to continue after delisting.
1	3.2	Research propagation techniques and feasibility of reintroduction	15	ODA*, BBG	68	12	4	4	4	4	

Implementation schedule for the recovery plan for Howell's spectacular thelypody											
Task Priority	Task Number	Task Description	Task Duration (years)	Responsible Parties	Cost Estimate (in \$1,000 units)						Comments
					Total Costs	FY 01	FY 02	FY 03	FY 04	FY 05	
1	5	Collect and provide permanent storage for seeds	15	BBG*, BLM, FWS	13	4	2.5	.5	.5	.5	Initial costs include seed collection. Implementation is expected to continue after delisting.
2	1.6.3	Control non-native plant species invasion	15	FWS, BLM, TNC, ODOT, County	75	5	5	5	5	5	Implementation is expected to continue after delisting.
2	1.6.4	Discourage agricultural or urban conversion of habitat	15	FWS, NRCS, County	15	1	1	1	1	1	Implementation is expected to continue after delisting.
2	1.6.5	Maintain appropriate hydrologic regime	15	FWS, NRCS, ACOE	15	1	1	1	1	1	Hydrology is influenced by factors such as adjacent agricultural and urban uses. Implementation is expected to continue after delisting.
2	2	Continue to survey for additional sites	15	FWS, BLM, FS	66	6	6	6	4	4	Implementation is expected to continue after delisting.
2	3.1	Research effects of habitat fragmentation and population viability	15	ODA, TNC, Universities	30	2	2	2	2	2	Implementation is expected to continue after delisting.

Implementation schedule for the recovery plan for Howell’s spectacular thelypody											
Task Priority	Task Number	Task Description	Task Duration (years)	Responsible Parties	Cost Estimate (in \$1,000 units)						Comments
					Total Costs	FY 01	FY 02	FY 03	FY 04	FY 05	
2	3.3	Develop and implement plans for reintroduction	15	FWS, ODA*, ONHP	75	5	5	5	5	5	Costs depend on number of sites identified for potential reintroduction. Implementation is expected to continue after delisting.
2	4	Develop and implement detailed monitoring plans for all sites	15	FWS, ONHP*, BLM	66	10	4	4	4	4	Costs depend on number of sites that will be monitored. Implementation is expected to continue after delisting.
2	6	Secure funding for recovery actions	15	FWS, TNC, BLM	45	3	3	3	3	3	
3	3.4	Consider using prescribed fire as a management tool	as needed	FWS, BLM, TNC*	unknown ¹						Costs depend on appropriateness and feasibility of implementation.
3	7	Revise and validate recovery objectives	15	FWS	26		1	1	1	5	Plan should be revised after 5 years.
Total estimated cost of recovery:					\$768,000						

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PART V. APPENDICES

Appendix A. Federal Register Notice (Listing)

Species		Historic range	Family name	Status	When listed	Critical habi- tat	Special rules
Scientific name	Common name						
*	*	*	*	*	*		*

Dated: May 17, 1999.

Jamie Rappaport Clark,

Director, Fish and Wildlife Service.

[FR Doc. 99-13251 Filed 5-25-99; 8:45 am]

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DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

RIN 1018-AE52

Endangered and Threatened Wildlife and Plants; Threatened Status for the Plant *Thelypodium howellii* ssp. *spectabilis* (Howell's spectacular thelypody)

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service) determine threatened status pursuant to the Endangered Species Act of 1973, as amended (Act), for *Thelypodium howellii* ssp. *spectabilis* (Howell's spectacular thelypody). *Thelypodium howellii* ssp. *spectabilis* is known from 11 sites in Baker and Union counties, Oregon. This taxon is threatened by a variety of factors including habitat destruction and fragmentation from agricultural and urban development, grazing by domestic livestock, competition from non-native vegetation, and alterations of wetland hydrology. This rule implements the Federal protection and recovery provisions afforded by the Act for the plant.

EFFECTIVE DATE: June 25, 1999.

ADDRESSES: The complete file for this rule is available for public inspection, by appointment, during normal business hours at the U.S. Fish and Wildlife Service, Snake River Basin Office, 1387 S. Vinnell Way, Room 368, Boise, Idaho 83709.

FOR FURTHER INFORMATION CONTACT: Robert Ruesink, Field Supervisor (see ADDRESSES section) (telephone 208/378-5243; facsimile 208/378-5262).

SUPPLEMENTARY INFORMATION:

Background

Thelypodium howellii ssp. *spectabilis* is a herbaceous biennial that occurs in moist, alkaline meadow habitats at approximately 1,000 meters (m) (3,000

feet (ft)) to 1,100 m (3,500 ft) elevation in northeast Oregon. The plant is currently known from 11 sites (5 populations) ranging in size from 0.01 hectares (ha) (0.03 acres (ac)) to 16.8 ha (41.4 ac) in the Baker-Powder River valley in Baker and Union counties. The total occupied habitat for this species is approximately 40 ha (100 ac). Plants at the type locality in Malheur County have not been relocated since 1927 and are considered to be extirpated (Kagan 1986). The entire extant range of this taxon lies within a 21 kilometer (km) (13 mile (mi)) radius of Haines, Oregon.

Due to its relatively low elevation and rich soils, agriculture is the primary land use in the Baker-Powder River Valley region, which contains the 11 extant *T. howellii* ssp. *spectabilis* sites. The region is bordered on the west by the Elkhorn Mountains and on the east by the Wallowa Mountains (Kagan 1986). Annual precipitation for the Baker Valley averages 27 centimeters (cm) (10.6 inches (in)), most falling as snow in winter. Weather patterns follow the interior continental weather systems with little maritime influence. Winters are cold, and summers are warm and dry (Larkin and Salzer 1992).

Thelypodium howellii ssp. *spectabilis* grows to approximately 60 cm (2 ft) tall, with branches arising from near the base of the stem. The basal leaves are approximately 5 cm (2 in) long with wavy edges and are arranged in a rosette. Stem leaves are shorter, narrow, and have smooth edges. Flowers appear in loose spikes at the ends of the stems. Flowers have four purple petals approximately 1.9 cm (0.75 in) in length, each of which is borne on a short (0.6 cm (0.25 in)) stalk. Fruits are long, slender pods (Greenleaf 1980, Kagan 1986).

This taxon was thought to be extinct until rediscovered by Kagan in 1980 near North Powder (Kagan 1986). The 11 recently discovered sites containing *T. howellii* ssp. *spectabilis* are located near the communities of North Powder, Haines, and Baker. The North Powder *T. howellii* ssp. *spectabilis* population contains five sites; the largest is subject to a conservation easement (16.8 ha (41.4 ac)). Until recently, one site near the town of North Powder, less than 0.8 ha (2.3 ac) in size, had a plant protection agreement between the landowner and The Nature Conservancy. The Haines plant

population currently consists of three small sites located in or near the town of Haines. Since the publication of the proposed rule, an additional site in Haines was identified (B. Russell, consultant, *in litt.* 1998) and one previously known site in Haines was apparently extirpated by development (P. Brooks, Forest Service, *in litt.* 1998). A 0.7 ha (1.8 ac) site west of Baker is within a 8 ha (20 ac) pasture adjacent to a road. Another site north of Baker (0.03 ha (0.08 ac)) exists in a small remnant of meadow habitat surrounded by farmland. One site approximately 8 km (5 mi) north of North Powder is located on private land at Clover Creek (Kagan 1986, Oregon Natural Heritage Program (ONHP) 1998).

Thelypodium howellii var. *spectabilis* was first described by Peck in 1932 (Peck 1932) from a specimen collected in 1927 near Ironside, Oregon (Malheur County). In 1973, Al-Shehbaz revised the genus and elevated the variety to subspecies status (Al-Shehbaz 1973). This taxon has larger petals than *T. howellii* ssp. *howellii*, and the paired filaments are not united (Al-Shehbaz 1973, Kagan 1986, Antell 1990). In addition, although both taxa occur in eastern Oregon, their habitats do not overlap (Kagan 1986). For purposes of this final rule, *T. howellii* ssp. *spectabilis* is recognized as a subspecies because of the taxonomic distinction made in 1973 (Al-Shehbaz 1973), although the plant was treated as a variety in the candidate assessment process (see "Previous Federal Action" section).

Thelypodium howellii ssp. *spectabilis* occurs in wet alkaline meadows in valley bottoms, usually in and around woody shrubs that dominate the habitat on the knolls and along the edge of the wet meadow habitat between the knolls. Associated species include *Sarcobatus vermiculatus* (greasewood), *Distichlis stricta* (alkali saltgrass), *Elymus cinereus* (giant wild rye), *Spartina gracilis* (alkali cordgrass), and *Poa juncifolia* (alkali bluegrass) (Kagan 1986). Soils are pluvial-deposited alkaline clays mixed with recent alluvial silts, and are moderately well-drained (Kagan 1986).

Thelypodium howellii ssp. *spectabilis* may be dependent on periodic flooding since it appears to rapidly colonize areas adjacent to streams that have flooded (Kagan 1986). In addition, this taxon does not compete well with

encroaching weedy vegetation such as *Dipsacus sylvestris* (teasel) (Davis and Youtie 1995).

Previous Federal Action

Federal government actions for the plant began as a result of section 12 of the Endangered Species Act of 1973, (Act) as amended (16 U.S.C. 1531 *et seq.*), which directed the Secretary of the Smithsonian Institution to prepare a report on those plants considered to be endangered, threatened, or extinct in the United States. This report, designated as House Document No. 94-51, was presented to Congress on January 9, 1975, and included *Thelypodium howellii* var. *spectabilis* as a threatened species. We published a notice in the July 1, 1975, **Federal Register** (40 FR 27823) of our acceptance of the Smithsonian Institution report as a petition within the context of section 4(c)(2) (petition provisions are now found in section 4(b)(3) of the Act) and our intention thereby to review the status of the plant taxa named therein. The July 1, 1975, notice included the above taxon. On June 16, 1976, we published a proposal (41 FR 24523) to determine approximately 1,700 vascular plant species to be endangered species pursuant to section 4 of the Act. The list of 1,700 plant taxa was assembled on the basis of comments and data received by the Smithsonian Institution and the Service in response to House Document No. 94-51 and the July 1, 1975, **Federal Register** publication. *Thelypodium howellii* var. *spectabilis* was not included in the June 16, 1976, **Federal Register** document.

We published an updated notice of review for plants on December 15, 1980 (45 FR 82480). This notice included *Thelypodium howellii* var. *spectabilis* as a category 1 candidate. Category 1 candidates were those for which the Service had sufficient information on biological vulnerability and threats to support proposals to list them as endangered or threatened species. This designation for *T. howellii* var. *spectabilis* was retained in the November 28, 1983, supplement to the Notice of Review (48 FR 53640), as well as subsequent revisions on September 27, 1985 (50 FR 39526), February 21, 1990 (55 FR 6184), and September 30, 1993 (58 FR 51143). Upon publication of the February 28, 1996 Notice of Review (61 FR 7596), we ceased using category designations and included *T. howellii* var. *spectabilis* as a candidate species. Candidate species are those for which the Service has on file sufficient information on biological vulnerability and threats to support proposals to list the species as threatened or endangered.

Section 4(b)(3)(B) of the Act requires the Secretary to make findings on pending petitions that present substantial information indicating the petitioned action may be warranted within 12 months of their receipt. Section 2(b)(1) of the 1982 amendments further requires that all petitions pending on October 13, 1982, be treated as having been newly submitted on that date. This was the case for *Thelypodium howellii* var. *spectabilis*, because the 1975 Smithsonian report had been accepted as a petition. On October 13, 1983, we found that the petitioned listing of the species was warranted, but precluded by other pending listing actions, in accordance with section 4(b)(3)(B)(iii) of the Act; notification of this finding was published on January 20, 1984 (49 FR 2485). Such a finding requires us to consider the petition as having been resubmitted, pursuant to section 4(b)(3)(C)(I) of the Act. The finding was reviewed annually in October of 1983 through 1996.

On January 13, 1998 (63 FR 1948), we published a proposal to list *Thelypodium howellii* ssp. *spectabilis* as a threatened species. We now determine *T. howellii* ssp. *spectabilis* to be a threatened species with the publication of this final rule.

The processing of this final rule conforms with our Listing Priority Guidance published in the **Federal Register** on May 8, 1998 (63 FR 25502). The guidance clarifies the order in which we will process rulemakings. Highest priority is processing emergency listing rules for any species determined to face a significant and imminent risk to its well being (Tier 1). Second priority (Tier 2) is processing final determinations on proposed additions to the lists of endangered and threatened wildlife and plants; the processing of new proposals to add species to the lists; the processing of administrative petition findings to add species to the lists, delist species, or reclassify listed species (petitions filed under section 4 of the Act); and a limited number of delisting and reclassifying actions. Processing of proposed or final designations of critical habitat is accorded the lowest priority (Tier 3). This final rule is a Tier 2 action and is being completed in accordance with the current Listing Priority Guidance. We have updated this rule to reflect any changes in information concerning distribution, status and threats since the publication of the proposed rule.

Summary of Comments and Recommendations

In the January 13, 1998, proposed rule (63 FR 1948) and associated notifications, all interested parties were requested to submit factual reports or information that might contribute to the development of a final rule. The comment period was approximately three months long and closed on April 20, 1998. Appropriate State agencies, County governments, Federal agencies, scientific organizations, and other interested parties were contacted and requested to comment. A request for a public hearing was received from Rod Dowse of the Oregon Cattlemen's Association. On March 5, 1998, we published a notice in the **Federal Register** (63 FR 10817) announcing the public hearing and the extension of the public comment period until April 20, 1998. A notice announcing the public hearing and proposal was published in the Baker City Herald on February 24, 1998. We conducted a public hearing on April 9, 1998, at the Geiser Grand Hotel in Baker City, Oregon. Testimony was taken from 6 p.m. to 8 p.m. Four parties provided testimony.

During the public comment period, we received written and oral comments from ten parties. Four commenters expressed support for the listing proposal, three commenters opposed the proposal, and three were neutral. Written comments and oral statements obtained during the public hearing and comment period are combined in the following discussion. Opposing comments and other comments questioning the rule were organized into specific issues. These issues and our response to each are summarized as follows:

Issue 1: The Service should conduct additional surveys for *Thelypodium howellii* ssp. *spectabilis* in Baker, Union, and Malheur counties to clarify its distribution and abundance. A few commenters believed that *T. howellii* ssp. *spectabilis* may be more widespread, and that further surveys were needed before listing.

Service response: We used information provided by the Oregon Natural Heritage Program and other knowledgeable botanists to evaluate the status of *T. howellii* ssp. *spectabilis*. Information from botanical collections that date from the 1920's was also utilized in the preparation of the proposed rule. The type locality in Malheur County has been resurveyed by numerous botanists over the past two decades, and *T. howellii* ssp. *spectabilis* has not been relocated. Recent surveys in Malheur County conducted by staff

from the Service (E. Rey-Vizgirdas, Service botanist, *in litt.* 1998) and Bureau of Land Management (J. Findlay, Bureau of Land Management, pers. comm. 1998) have also failed to locate additional sites or populations.

Only one commenter provided information on a *T. howellii* ssp. *spectabilis* site that was not specifically mentioned in the proposed rule (B. Russell, *in litt.* 1998). This site, located on private land in Haines, Oregon, is within 1/2 mile of other sites containing this species and is subject to similar threats as the populations discussed in the proposed rule. Although *T. howellii* ssp. *spectabilis* populations vary in size from year to year and new populations may be found in the future, similar threats are likely to apply to any newly discovered populations. In summary, no data were provided to substantiate the claim that *T. howellii* ssp. *spectabilis* is more widespread than previously described in the proposed rule.

Issue 2: Several commenters believed that more information was needed on the life history of *T. howellii* ssp. *spectabilis*. Some asked for further clarification on its habitat and growth requirements. One commenter claimed that this taxon may be a weed, similar to other noxious weeds in the mustard family. Another asked whether *T. howellii* ssp. *spectabilis* could be transplanted or propagated.

Service response: Although several widespread members of the mustard family such as whitetop (*Cardaria draba*), blue mustard (*Chorispora tenella*), and tumble mustard (*Sisymbrium altissimum*) are considered to be noxious weeds, no species of *Thelypodium* are known to be noxious weeds in the western United States (Whitson *et al.* 1996).

In some cases, transplanting or propagating rare plants is essential to recovery. However, we believe that the protection of existing habitat for *T. howellii* ssp. *spectabilis* is critical to the long-term conservation of this species. We will consider the feasibility of propagating individuals or establishing additional populations of *T. howellii* ssp. *spectabilis* during the development of a recovery plan for this species. Additional information on the life history and growth requirements of *T. howellii* ssp. *spectabilis* also will be gathered during the recovery process.

Issue 3: Several commenters questioned the effects of activities such as grazing, altered hydrology, and agriculture on *T. howellii* ssp. *spectabilis*. One commenter wondered if other plant species have outcompeted *T. howellii* ssp. *spectabilis* in areas where hydrologic conditions have changed.

Another commenter stated that habitat for *T. howellii* ssp. *spectabilis* has been highly altered by changes in natural wetland hydrology, and that such hydrologic changes may not be restorable. A few commenters stated that disturbance may actually be beneficial for *T. howellii* ssp. *spectabilis*. One commenter believed that grazing management is appropriate for habitat conditions in eastern Oregon, and that grazing is not a threat to *T. howellii* ssp. *spectabilis*. In addition, the effects of livestock on this taxon are not well known. Some commenters stated that *T. howellii* ssp. *spectabilis* is not threatened by agriculture because it occurs on land not suitable for farming.

Service response: Only one population of *T. howellii* ssp. *spectabilis* occurs on land that may be managed for the long-term protection of this species (a permanent conservation easement on private land near North Powder, Oregon). All remaining *T. howellii* ssp. *spectabilis* sites in Baker and Union counties are subject to a variety of threats including development, road construction projects and maintenance, trampling, recreational activities, and the invasion of exotic plant species.

The Service agrees that appropriate grazing management may be suitable for maintaining general habitat conditions and forage species in Baker and Union counties. However, the impact of livestock grazing on rare plant species is influenced by factors including the season and magnitude of grazing. In some cases, grazing effects can be neutral or even beneficial if grazing is managed to minimize impacts such as trampling or compaction. As described in the "Summary of Factors Affecting the Species" section, we believe that grazing of *T. howellii* ssp. *spectabilis* during the active growing season can adversely impact the reproduction of this species. Reproduction by seed is necessary for the survival of annual and biennial plant species such as *T. howellii* ssp. *spectabilis*. Because *T. howellii* ssp. *spectabilis* is palatable to livestock, grazing in occupied habitat prior to seed maturation and dispersal can result in lower seed set and fewer seedlings of *T. howellii* ssp. *spectabilis*.

Changes in hydrology or soil conditions often result in changes in the abundance and distribution of plant species. At several sites containing *T. howellii* ssp. *spectabilis* near Baker City and North Powder, *T. howellii* ssp. *spectabilis* plants are located adjacent to, but not within areas dominated by wetland plant species such as cattails (*Typha* spp.), sedges (*Carex* spp.), water hemlock (*Cicuta douglasii*), and teasel (*Dipsacus sylvestris*). Although it is not

known whether these species have actually displaced *T. howellii* ssp. *spectabilis*, it is unlikely that *T. howellii* ssp. *spectabilis* can persist in areas where the hydrologic conditions are not favorable or in areas dominated by exotic species.

Although remaining sites supporting *T. howellii* ssp. *spectabilis* may not be directly threatened by agricultural conversion, indirect effects of agriculture include habitat fragmentation, changes in local hydrologic conditions, and the use of herbicides and pesticides (which may impact pollinator populations). Because all known *T. howellii* ssp. *spectabilis* sites have been invaded at least to some extent by noxious weeds such as teasel and thistles (*Cirsium* spp.). As a result, *T. howellii* ssp. *spectabilis* is particularly vulnerable to herbicide use.

Issue 4: One commenter questioned the accuracy of population data for *T. howellii* ssp. *spectabilis* presented in the proposed rule, and further believed that information based on "ocular estimates" of population size should not be used.

Service response: We acknowledge that careful collection of population data (e.g., numbers of plants and population trends) can be useful to identify problems such as poor reproduction and lack of recruitment of new individuals into the population. However, like most annual plants, the population size of biennial plant species such as *T. howellii* ssp. *spectabilis* can vary greatly from year to year. We do not rely solely on population information, but consider threats to the species as outlined under the "Summary of Factors Affecting the Species" section of all proposed and final listing rules. These factors are discussed in detail for this species in the "Summary of Factors Affecting the Species" section of this final rule.

Issue 5: One commenter felt that *T. howellii* ssp. *spectabilis* should be listed as endangered rather than threatened due to the limited number of sites and threats to its habitat, and believed that *T. howellii* ssp. *spectabilis* is not likely to persist in small habitat areas. Another commenter stated that although the population of *T. howellii* ssp. *spectabilis* fluctuates from year to year, eight *T. howellii* ssp. *spectabilis* sites that have been monitored since the 1980's appear to be declining. Two commenters provided information about a proposed race track development project near Haines, stating that this project, if implemented, could damage habitat for *T. howellii* ssp. *spectabilis*, and that the land may be zoned for industrial purposes. One commenter provided information on a population of *T.*

howellii ssp. *spectabilis* in Haines that occurs directly adjacent to a proposed highway improvement project. This commenter further stated that, as of June 1997, at least two lots in Haines that contained *T. howellii* ssp. *spectabilis* were for sale.

Service response: We acknowledge that *T. howellii* ssp. *spectabilis* sites located within or adjacent to the City of Haines are threatened by isolation, development, and other activities, as described in the "Summary of Factors Affecting the Species" section.

However, we believe that the site supporting the largest habitat area (located near North Powder) can be managed for the long-term protection of this species. In addition, at least three other sites containing *T. howellii* ssp. *spectabilis* (including the second largest habitat area at Clover Creek) are not currently threatened by development. We will continue to work with willing landowners and State, local, and Federal agencies to ensure that grazing and other activities are managed to reduce impacts to this species and its habitat. The species is not in imminent danger of extinction. Thus, the listing as threatened rather than endangered is appropriate.

Issue 6: One commenter stated that *T. howellii* ssp. *spectabilis* should not be listed because economic impacts have not been considered.

Service response: In accordance with 16 U.S.C., paragraph 1533 (b)(1)(A), 50 CFR 424.11(b), and section 4(b)(1)(A) of the Act, listing decisions are made solely on the basis of the best available scientific and commercial data. Economic impacts cannot be considered when determining whether to list a species under the Act.

Issue 7: One commenter stated that the Service should not list *T. howellii* ssp. *spectabilis* because it has no authority to list or regulate species under the Act that are not involved in interstate commerce. This commenter further believed that Federal listing for *T. howellii* ssp. *spectabilis* is unnecessary since it would not confer greater protection for this species than Oregon's Endangered Species Act already provides.

Service response: The Federal government has the authority under the Commerce Clause of the U.S. Constitution to protect this species for the reasons given in Judge Wald's opinion and Judge Henderson's

concurring opinion in *National Association of Home Builders v. Babbitt*, 130 F.3d 1041 (D.C. Cir. 1997), *cert. denied*, 1185 S. Ct. 2340 (1998). That case involved a challenge to application of the Act prohibitions to protect the listed Delhi Sands flower-loving fly. As with *T. howellii* ssp. *spectabilis*, the Delhi Sands flower-loving fly is endemic to only one state. Judge Wald held that application of the Act's prohibitions against taking of endangered species to this fly was a proper exercise of Commerce Clause power to regulate: (1) use of channels of interstate commerce; and (2) activities substantially affecting interstate commerce because it prevented loss of biodiversity and destructive interstate competition. Judge Henderson upheld protection of the fly because doing so prevents harm to the development that is part of interstate commerce.

We believe that the Federal government has the authority under the Property Clause of the Constitution to protect this species. While *T. howellii* ssp. *spectabilis* is not known to occur on Federal land, it is clear that the species is part of an ecosystem that includes Federal lands. Baker and Union counties contain a significant amount of Federal land administered by the U.S. Forest Service and the Bureau of Land Management. Native species such as mule deer range widely across these lands, and are known to graze on *T. howellii* ssp. *spectabilis*. The courts have long recognized Federal authority under the Property Clause to protect Federal resources in such circumstances. See, e.g., *Kleppe v. New Mexico*, 429 U.S. 873 (1976); *United States v. Alford*, 274 U.S. 264 (1927); *Camfield v. United States*, 167 U.S. 518 (1897); *United States v. Lindsey*, 595 F.2d 5 (9th Cir. 1979).

As for whether Federal listing of *T. howellii* ssp. *spectabilis* would confer more protection than is already provided under Oregon law, the inadequacy of the State law is discussed below in Section D of the "Summary of Factors Affecting the Species" section of this rule.

Peer Review

In accordance with interagency policy published on July 1, 1994 (59 FR 34270), we solicited the expert opinions of three independent specialists regarding pertinent scientific or commercial data and assumptions

relating to the taxonomy, population status, and supportive biological and ecological information for the taxon under consideration for listing. The purpose of such review is to ensure that listing decisions are based on scientifically sound data, assumptions, and analyses, including input of appropriate experts and specialists. Two scientists responded to our request for peer review of this listing action. Both responders provided information which supported the biological and ecological data presented in the proposed rule.

Summary of Factors Affecting the Species

Section 4 of the Endangered Species Act (16 U.S.C. 1533) and regulations (50 CFR part 424) that implement the listing provisions of the Act established the procedures for adding species to the Federal lists. A species may be determined to be an endangered or threatened species due to one or more of the five factors described in section 4(a)(1). These factors and their application to *Thelypodium howellii* ssp. *spectabilis* are as follows:

A. The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range.

Most of the habitat for *T. howellii* ssp. *spectabilis* has been modified or lost to urban and agricultural development. Habitat degradation at all remaining sites for this species is due to a combination of livestock grazing, agricultural conversion, hydrological modifications, and competition from non-native vegetation (see Factor E). These activities have resulted in the extirpation of *T. howellii* ssp. *spectabilis* from about half its former range in Baker, Union, and Malheur counties. Plants at the type locality in Malheur County are considered to be extirpated due to past agricultural development (Kagan 1986, ONHP 1998). Since 1990, at least 40 percent of the sites sampled in North Powder that previously contained *T. howellii* ssp. *spectabilis* have been extirpated (A. Robinson, Service botanist, *in litt.* 1996). These sites were all located within areas subjected to grazing. Grazing, trampling, exotic species, and agricultural activities continue to threaten virtually all remaining habitat for this species (Table 1).

TABLE 1.—SUMMARY OF THREATS

Site (Population)	Hectares (Acres)	Number plants	Ownership	Threats
Clover Creek	15.9 (39.2)	300 (Kagan 1986)	Private	Livestock grazing, herbicides.
North Powder 2 (North Powder)	0.9 (2.3)	16,000 (Salzer, <i>in litt.</i> 1996).	Private	Non-native vegetation.
Miles easement (North Powder)	16.8 (41.4)	Greater than 2,500 (Robinson, <i>in litt.</i> 1996).	Private (conserv. easement).	Livestock grazing, hydrologic modifications.
Hot Creek east of I-85 (North Powder)	0.24 (0.59)	12 (Kagan, pers. comm., 1995).	Private (ODOT ¹)	Naturally occurring events.
Hot Creek North (North Powder)	0.01 (0.03)	10 (Robinson, <i>in litt.</i> 1996).	Private	Livestock grazing, naturally occurring events.
Powder River (North Powder)	0.03 (0.07)	100 (Robinson, <i>in litt.</i> 1996).	Private (ODOT ¹)	Livestock grazing.
Haines rodeo (Haines)	4.3 (10.6)	June 1998: 10,000; July 1998: 300 (E. Rey-Vizgirdas, <i>in litt.</i> 1998).	Private (ODOT ¹)	Urbanization, mowing.
Haines water tower (Haines)	0.4 (1.0)	200 to 300 (E. Rey-Vizgirdas, <i>in litt.</i> 1998).	Unknown (private)	Urbanization.
Haines west (Haines)	Not available	Not available	Private	Urbanization, road construction, herbicides.
Haines 4th and Olson (Haines)	0.1 (0.3)	700 to 800 (E. Rey-Vizgirdas, <i>in litt.</i> 1998).	Private	Possibly extirpated (Brooks, <i>in litt.</i> 1998)
Baker City North	0.03 (0.08)	40 (Kagan, pers. comm., 1995).	Private	Agricultural conversion, herbicides.
Pocahontas Road	0.7 (1.8)	250 to 300 (E. Rey-Vizgirdas, <i>in litt.</i> 1998).	Private	Livestock grazing, non-native vegetation.

¹ Oregon Department of Transportation Easement.

Within the City of Haines, all remaining habitat containing *T. howellii* ssp. *spectabilis* is being impacted by residential construction, trampling, and other activities. In 1994, a large section of habitat formerly occupied by *T. howellii* ssp. *spectabilis* at the Haines rodeo grounds was destroyed when a parking lot was constructed. Although an estimated 5,000 to 10,000 *T. howellii* ssp. *spectabilis* plants were present at the Haines rodeo grounds in late June 1998, the majority of this population was subsequently impacted by the July 4 and 5 rodeo; the site was apparently mowed and used as a parking area during the rodeo (E. Rey-Vizgirdas, *in litt.* 1998). Immediately after the rodeo, fewer than 300 *T. howellii* ssp. *spectabilis* plants were observed at the site. Most of these plants were found along the fence line adjacent to the main road (outside the rodeo grounds). It is possible that the *T. howellii* ssp. *spectabilis* population may recover from this disturbance. However, it is unlikely that the entire population was able to reproduce successfully prior to mowing since most plants were in full bloom (without mature fruits) in late June (E. Rey-Vizgirdas, *in litt.* 1998).

T. howellii ssp. *spectabilis* habitat within a proposed racing area development project adjacent to the rodeo grounds, will likely be impacted by the proposed project. However, since no specific *T. howellii* ssp. *spectabilis*

surveys have been completed for this project, it is unclear how many *T. howellii* ssp. *spectabilis* plants will be affected.

Another *T. howellii* ssp. *spectabilis* site in Haines, which contained approximately 800 plants in June 1998 (E. Rey-Vizgirdas, *in litt.* 1998), apparently was subsequently extirpated by residential development (P. Brooks, *in litt.* 1998). Urbanization represents a major threat for this species within the city limits of Haines.

Thelypodium howellii ssp. *spectabilis* is threatened by changes in hydrology related primarily to historic and current land uses such as agricultural conversion and flood control. Modifying the intensity and frequency of flooding events and soil moisture levels can significantly alter plant habitat suitability. If moisture levels stay high later in the spring or summer, species such as sedges and rushes will outcompete *T. howellii* ssp. *spectabilis*; if the soil becomes too saline, *Distichlis* will outgrow *T. howellii* ssp. *spectabilis* (Davis and Youtie 1995). Irrigation practices in the vicinity of *T. howellii* ssp. *spectabilis* habitat tend to increase soil moisture levels and can also increase soil salinity (Davis and Youtie 1995), making the habitat less suitable for this plant. Hydrological modifications occurred in at least two sites containing this taxon in the vicinity of North Powder (Davis and

Youtie 1995; Robinson, *in litt.* 1996). In addition, it is likely that natural hydrologic processes have been altered at all of the existing sites due to surrounding land uses including agriculture and residential/urban development.

B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

The plant is not a source for human food or of commercial horticulture interest. Therefore, this is not a factor considered in the listing decision at this time.

C. Disease or Predation

Thelypodium howellii ssp. *spectabilis* is palatable to livestock (Kagan 1986, Davis and Youtie 1995). Cattle directly consume and trample individual plants (Kagan 1986). Native herbivores (e.g. deer (*Odocoileus*) and elk (*Cervus*)) likely consume *T. howellii* ssp. *spectabilis* plants; however, there is little evidence to suggest that herbivory by native ungulates currently poses a significant threat to this taxon (Kagan 1986).

Livestock grazing can negatively impact habitat and contribute to reduced reproduction of this species (Kagan 1986). In particular, spring and early summer grazing adversely affects reproduction for *T. howellii* ssp. *spectabilis* by removing flowers and/or

fruits, and individual plants get trampled during the period of active growth (generally from May through July).

In July 1995, Berta Youtie (plant ecologist, The Nature Conservancy) and Andrew Robinson (Service botanist, Oregon State Office) found that cattle had consumed all *T. howellii* ssp. *spectabilis* plants that were present within a pasture at Clover Creek; plants were only observed in an adjacent area that was not subject to grazing. The Clover Creek site (15.9 ha (39.2 ac)) supports the second largest remaining plant habitat area.

At another site intentionally not grazed for the last five years, *T. howellii* ssp. *spectabilis* plants have expanded into areas previously unoccupied. Areas that were previously heavily grazed now contain higher densities and larger plants than marginal refugia habitat beneath *Sarcobatus* (Robinson, *in litt.* 1996). However, this site, while under a permanent conservation easement, has been subjected to trespass grazing on at least two occasions during the past three years (A. Robinson, pers. comm., 1997).

D. The Inadequacy of Existing Regulatory Mechanisms

Thelypodium howellii ssp. *spectabilis* is listed as endangered by the State of Oregon (Oregon Department of Agriculture). However, the State Endangered Species Act does not provide protection for species on private land. Therefore, under State law, in such cases, any plant protection is at the discretion of the landowner.

The Oregon Department of Transportation (ODOT) currently considers potential impacts to *T. howellii* ssp. *spectabilis* in their road maintenance activities where it occurs at three sites that are partially within ODOT rights-of-way. However, two of these sites are less than 0.4 ha (1 ac) in size, and the third site (at Haines rodeo ground) is threatened by activities that are not controlled by ODOT.

Thelypodium howellii ssp. *spectabilis* could potentially be affected by projects requiring a permit under section 404 of the Clean Water Act. Under section 404, the U.S. Army Corps of Engineers (Corps) regulates the discharge of fill material into waters of the United States including navigable and isolated water bodies, headwaters, and adjacent wetlands. Section 404 regulations require applicants to obtain an individual permit to place fill for projects affecting greater than 4 ha (10 ac) of waters of the U.S. Projects can qualify for authorization under Nationwide Permit 26 (NWP 26) if the discharge does not cause the loss of

more than three acres of waters of the U.S. nor cause the loss of waters of the U.S. for a distance greater than 500 linear feet of stream bed. Projects that qualify for authorization under NWP 26 may proceed without prior notification to the Corps if the discharge would cause the loss of less than $\frac{1}{3}$ of an acre of waters of the U.S. (33 CFR 330. App. A 26b.). Evaluation of impacts of such projects by the resource agencies through the section 404 process is thus not an option. Corps Division and District Engineers may require that an individual section 404 permit be obtained if projects otherwise qualifying under NWP 26 would cause greater than minimal individual or cumulative environmental impacts. Corps regulations implementing the Clean Water Act require withholding authorization under NWP 26 if the existence of a listed endangered or threatened species would be jeopardized, regardless of the significance of the affected wetland resources (33 CFR 330.4 (f)).

The Oregon Department of Fish and Wildlife (ODFW) was previously designated as the easement manager of a wildlife area that contains *Thelypodium howellii* ssp. *spectabilis* (Conservation Easement 1991). The conservation easement was established by the Farm Services Agency to protect a large wetland complex and related resources. However, a preliminary draft management plan (ODFW 1996) for this site does not adequately provide for the long-term maintenance of the plant and ODFW is withdrawing as easement manager (J. Lauman, ODFW, *in litt.* 1996; M. Smith, Service biologist, Oregon State Office, pers. comm. 1998). A new easement manager for the site has not been designated. Development of a final management plan for the site, which may better address concerns regarding the viability of this species (e.g., potential hydrological modifications of existing habitat), has not yet been initiated. In addition, although this site is under a conservation easement, trespass grazing by cattle has occurred on at least two occasions in the last three years and continues to threaten *T. howellii* ssp. *spectabilis* habitat onsite.

One *T. howellii* ssp. *spectabilis* site had a plant protection agreement between the landowner and The Nature Conservancy. However, the agreement has expired and the amount of occupied habitat (less than 0.5 ha (1 ac)) onsite is not expected to provide for the long-term viability of the species in the absence of intensive management (B. Youtie, The Nature Conservancy, pers. comm., 1998).

E. Other Natural or Manmade Factors Affecting Its Continued Existence

Mowing of *T. howellii* ssp. *spectabilis* habitat at the Haines rodeo ground typically occurs annually, and can impact this species if performed during the growing season prior to seed set. Historically, annual rodeos were held in July; however, in 1995 an additional spring rodeo was held in May. Mowing to prepare for the spring rodeo occurs prior to seed set, and if this practice continues it will adversely affect reproduction of the plant. In some cases, mowing of *T. howellii* ssp. *spectabilis* habitat for the July rodeo can reduce reproduction if it occurs prior to seed set (see Factor A of this section). The Haines rodeo ground currently supports the third largest habitat area for *T. howellii* ssp. *spectabilis*.

Competition from nonnative plant species including *Dipsacus sylvestris* (teasel), *Cirsium vulgare* (bull thistle), *C. canadensis* (Canada thistle), and *Melilotus officinalis* (yellow sweet clover) also threatens the long-term survival of *Thelypodium howellii* ssp. *spectabilis* (Davis and Youtie 1995). The rapid expansion of *D. sylvestris* is considered a significant threat to this species (Larkin and Salzer 1992). At several sites, the formerly mesic meadow communities containing *Sarcobatus* (greasewood) and *T. howellii* ssp. *spectabilis* have largely been replaced by nonnative species.

At least two sites containing *T. howellii* ssp. *spectabilis* are directly adjacent to fields where crops such as wheat and barley are produced. The use of dicot-specific herbicides in these areas threatens *T. howellii* ssp. *spectabilis* when overspraying occurs (J. Kagan, plant ecologist, Oregon Natural Heritage Program, pers. comm., 1997). One of these sites (Clover Creek) currently contains the second largest habitat area for this species.

Because most populations of this species are small and existing habitat is fragmented by agricultural conversion, grazing, roads and urbanization, naturally occurring events, such as drought, represent threats to the continued existence of this species. Of the 11 sites for this species, 6 (50 percent) are 0.4 ha (1 ac) or less. Only 3 sites are larger than 4 ha (10 ac). Small, isolated parcels are vulnerable to edge effects (i.e., invasion by exotic plant species, disturbances by local residents) and are unlikely to contribute significantly to the long-term preservation of this species.

Livestock grazing tends to fragment *T. howellii* ssp. *spectabilis* populations by reducing the density of plants in

openings, and restricting individuals to protected sites (e.g., beneath *Sarcobatus* plants or spiny shrubs) (Kagan 1986, Robinson, *in litt.* 1996). Such habitat fragmentation also severely restricts the potential for plant population expansion. Most known populations of *T. howellii* ssp. *spectabilis* contain a low number of individual plants and are limited geographically so that future survival may depend on recovery actions such as restoring degraded habitat areas and removing competing nonnative vegetation.

We have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by this species in determining to issue this final rule. Most of the remaining sites that support *T. howellii* ssp. *spectabilis* are small and fragmented, and all existing sites are vulnerable to impacts from grazing, trampling, and non-native vegetation in addition to urban and agricultural development. One site is under a permanent conservation easement, although management of this site has not been completely effective at maintaining *T. howellii* ssp. *spectabilis* habitat in the past. We are currently working to better address management of the plant habitat at this site, which will include construction of fencing to protect habitat from livestock grazing and to assist in noxious weed control.

We have determined that listing as threatened rather than endangered is appropriate for this species primarily because we believe that grazing can be managed in a manner that will not adversely affect habitat for *T. howellii* ssp. *spectabilis*, and the site containing the largest habitat area for this taxon is subject to a permanent conservation easement. In addition, the State and local weed management agencies have initiated measures that afford some protection to *T. howellii* ssp. *spectabilis*, such as identifying areas to be avoided by herbicide application, and placing signs in the area. Based on this evaluation, the preferred action is to list *T. howellii* ssp. *spectabilis* as threatened. Alternatives to this action were considered but not preferred because not listing this species would not provide adequate protection and would not be consistent with the Act. In addition, listing this species as endangered would not be appropriate because the State of Oregon and local management agencies have decreased the danger of extinction of *T. howellii* ssp. *spectabilis* at the present time. However, if population declines continue and threats are not adequately addressed, this species could be threatened with extinction in the

foreseeable future. For reasons discussed below, critical habitat is not being proposed at this time.

Critical Habitat

Critical habitat is defined in section 3 of the Act as (i) the specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the Act, on which are found those physical or biological features (I) essential to the conservation of the species and (II) that may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by the species at the time it is listed, upon determination that such areas are essential for the conservation of the species. "Conservation" means the use of all methods and procedures needed to bring the species to the point at which listing under the Act is no longer necessary.

Section 4(a)(3) of the Act, as amended, and implementing regulations (50 CFR 424.12) require that, to the maximum extent prudent and determinable, the Secretary designate critical habitat at the time the species is listed as endangered or threatened. Service regulations (50 CFR 424.12 (a)(1)) state that designation of critical habitat is not prudent when one or both of the following situations exist—(1) the species is threatened by taking or other human activity, and identification of critical habitat can be expected to increase the degree of threat to the species, or (2) such designation of critical habitat would not be beneficial to the species.

Section 7(a)(2) of the Act requires Federal agencies to consult with the Service to ensure that any action authorized, funded, or carried out by such agency, does not jeopardize the continued existence of a federally listed species or does not destroy or adversely modify designated critical habitat. The requirement that Federal agencies refrain from contributing to the destruction or adverse modification of critical habitat in any action authorized, funded or carried out by such agency (agency action) is in addition to the section 7 prohibition against jeopardizing the continued existence of a listed species, and it is the only mandatory legal consequence of a critical habitat designation. The Service's implementing regulations (50 CFR part 402) define "jeopardize the continuing existence of" and "destruction or adverse modification of" in very similar terms. To jeopardize the continuing existence of a species means to engage in an action "that reasonably would be expected to reduce

appreciably the likelihood of both the survival and recovery of a listed species." Destruction or adverse modification of habitat means an "alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species."

Common to both definitions is an appreciable detrimental effect to both the survival and recovery of a listed species. An action that appreciably diminishes habitat for recovery and survival may also jeopardize the continued existence of the species by reducing reproduction, numbers, or distribution because negative impacts to such habitat may reduce population numbers, decrease reproductive success, or alter species distribution through habitat fragmentation.

For a listed plant species, an analysis to determine jeopardy under section 7(a)(2) would take into consideration the loss of the species associated with habitat impacts. Such an analysis would closely parallel an analysis of habitat impacts conducted to determine adverse modification of critical habitat. As a result, an action that results in adverse modification also would almost certainly jeopardize the continued existence of the species concerned. Because habitat degradation and destruction is the primary threat to *Thelypodium howellii* ssp. *spectabilis*, listing it will ensure that section 7 consultation occurs and potential impacts to the species and its habitat are considered for any Federal action that may affect this species. In many cases, listing also ensures that Federal agencies consult with the Service even when Federal actions may affect unoccupied suitable habitat where such habitat is essential to the survival and recovery of the species. This is especially important for plant species where consideration must be given to the seed bank component of the species, which are not necessarily visible in the habitat throughout the year. A significant portion of their vegetative structure may not be in evidence during cursory surveys; occupancy of suitable habitat can only be reliably determined during the growing season. In practice, we consult with Federal agencies proposing projects in areas where the species was known to recently occur or to harbor known seed banks.

Apart from section 7, the Act provides no additional protection to lands designated as critical habitat. Designating critical habitat does not create a management plan for the areas where the listed species occurs; does

not establish numerical population goals or prescribe specific management actions (inside or outside of critical habitat); and does not have a direct effect on areas not designated as critical habitat.

Critical habitat designation for *Thelypodium howellii* ssp. *spectabilis* is not prudent because it would provide no additional benefit on non-Federal lands beyond that provided by listing. *T. howellii* ssp. *spectabilis* is known to occur only on private lands. Critical habitat designation provides protection on non-Federal lands or private lands only when there is Federal involvement through authorization or funding of, or participation in, a project or activity (Federal nexus). In other words, designation of critical habitat on non-Federal lands does not compel or require the private or other non-Federal landowner to undertake active management for the species or to modify any activities in the absence of a Federal nexus. Because all known occurrences of this plant are on private land, activities constituting threats to the species (see "Summary of Factors Affecting the Species"), including grazing, agricultural and urban development, alterations of wetland hydrology, and competition from non-native vegetation, are generally not subject to section 7 consultation. Any Federal involvement, if it does occur, will be addressed regardless of whether critical habitat is designated because interagency coordination requirements such as the Fish and Wildlife Coordination Act and section 7 of the Act are already in place. When *T. howellii* ssp. *spectabilis* is listed, activities occurring on all lands subject to Federal jurisdiction that may adversely affect these species would prompt the requirement for section 7 consultation, regardless of whether critical habitat has been designated. Although there may occasionally be a Federal nexus for *T. howellii* ssp. *spectabilis* through regulation of wetland fill and removal activities regulated by the U.S. Corps through section 404 of under the Clean Water Act, the designation of critical habitat for this plant would provide no benefit beyond that provided by listing. For example, the plant is restricted to 11 known sites (seven less than an acre in size) in unique, moist, alkaline meadow habitat located in valley bottoms, and any action that would adversely modify habitat at these sites also would jeopardize the continued existence of the species, because the biological threshold for triggering either determination would be the same. In

view of the limited habitat for this species, the loss of any of the 11 sites resulting from Corps regulated wetland fill activities would likely result in a jeopardy determination. Thus, in this case, the prohibition on adverse modification would provide no benefit beyond that provided by the prohibition on jeopardy. The designation of critical habitat, therefore, would not provide additional benefit for the species.

While a designation of critical habitat on private lands would only affect actions where a Federal nexus is present and would not confer any additional benefit beyond that already provided by section 7 consultation; and because virtually any action that would result in an adverse modification determination would also likely jeopardize the species, a designation of critical habitat on private lands could result in a detriment to the species. This is because the limited effect of a critical habitat designation on private lands is often misunderstood by private landowners whose property boundaries could be included within a general description of critical habitat for a specific species. Landowners may mistakenly believe that critical habitat designation will be an obstacle to land use and development and impose restrictions on their use of their property. In some cases, members of the public may believe critical habitat designation to be an attempt on the part of the government to confiscate their private property. Unfortunately, inaccurate and misleading statements reported through widely popular media available worldwide are the types of misinformation that can and have led private landowners to believe that critical habitat designations prohibit them from making private use of their land when, in fact, they face potential constraints only if they need a Federal permit or receive Federal funding to conduct specific activities on their lands, such as filling in wetlands. These types of misunderstandings, and the fear and mistrust they create among potentially affected landowners, makes it very difficult for us to cultivate meaningful working relationships with such landowners and to encourage voluntary participation in species conservation and recovery activities. Without the willing participation of landowners in the recovery process, we will find it very difficult to recover *T. howellii* ssp. *spectabilis* on the private lands where the only known populations occur.

We are currently working with involved agencies and landowners to periodically survey and monitor *T. howellii* ssp. *spectabilis* populations and

develop plant management strategies. We have notified all involved parties and landowners of the importance of protecting the habitat of the remaining populations of *T. howellii* ssp. *spectabilis*, and plant protection agreements for some sites are in place. The livestock grazing threat is being addressed by working directly with landowners to adjust seasonal use and through fence construction to limit livestock trespass. The plant is palatable to livestock, and grazing occurring from April through July can be detrimental to annual seed production; grazing at other times of the year has little direct effect (Davis and Youtie 1995). Altered grazing practices can only be achieved through voluntary efforts of landowners; designation of critical habitat would not change grazing practices.

In addition to cooperative efforts between us and landowners, other governmental agencies offer opportunities to protect *T. howellii* ssp. *spectabilis*. All known locations of *T. howellii* ssp. *spectabilis* along road sides have been inconspicuously marked so Oregon State Highway Department crews can avoid destruction of plants during highway maintenance activities (A. Robinson, pers. comm. 1997). The U.S. Department of Agriculture, through its Wildlife Habitat Incentive Program offers funding to landowners which can be used to protect endangered plants, including *T. howellii* ssp. *spectabilis* (62 FR 49357). In view of ongoing actions and the lack of benefit provided by designation of critical habitat on non-Federal lands, we believe that conservation and protection of this plant will be accomplished more effectively through procedures other than critical habitat designation.

A designation of critical habitat for *T. howellii* ssp. *spectabilis* on private lands could inadvertently encourage habitat destruction by private landowners wishing to rid themselves of the perceived endangered species problem. Listed plants have limited protection under the Act, particularly on private lands. Section 9(a)(2) of the Act, implemented by regulations at 50 CFR section 17.61 (endangered plants) and 50 CFR 17.71 (threatened plants) only prohibits (1) removal and reduction of listed plant species to possession from areas under Federal jurisdiction, or their malicious damage or destruction on areas under Federal jurisdiction; or (2) removal, cutting, digging up, or damaging or destroying any such species in knowing violation of any State law or regulation, including State criminal trespass laws. Generally, on private lands, collection of, or vandalism to, listed plants must occur

in violation of State law to be a violation of section 9. The Oregon Endangered Species Act does not protect listed plants on private lands. Thus, a private landowner concerned about perceived land management conflicts resulting from a critical habitat designation covering his property would likely face no legal consequences if the landowner removed the listed species or destroyed its habitat. The designation of critical habitat involves the publication of habitat descriptions and mapped locations of the species in the **Federal Register**, increasing the likelihood of unwanted notice by potential search and removal activities at specific sites.

We acknowledge that in some situations critical habitat designation may provide some value to the species by notifying the public about areas important for the species conservation and calling attention to those areas in special need of protection. However, in this case, the few existing sites containing *T. howellii* ssp. *spectabilis* are already known by the affected private landowners. When this limited public notification benefit is weighed against the detriment to plant species associated with the widespread misunderstanding about the effects of such designation on private landowners and the environment of mistrust and fear that such misunderstandings can create, we conclude that the detriment to the species from a critical habitat designation covering non-federal lands outweighs the educational benefit of such designation and that such designation is therefore not prudent. The information and notification process can more effectively be accomplished by working directly with landowners and communities during the recovery planning process and by the section 7 consultation and coordination where the Federal nexus exists. The use of these existing processes will impart the same knowledge to the landowners that critical habitat designation would, but without the confusion and misunderstandings that may accompany a critical habitat designation.

Although this biennial plant is not of horticultural interest, the listing in and of itself may contribute to an increased risk from over-collection. Simply listing a species can precipitate commercial or scientific interest and activities, both legal and illegal, which can threaten the species through unauthorized and uncontrolled collection for both commercial and scientific purposes. The listing of species as endangered or threatened publicizes their rarity and may make them more susceptible to collection by researchers or curiosity

seekers (Mariah Steenson pers. comm. 1997, M. Bosch, U.S. Forest Service *in litt.* 1997). Disseminating specific, sensitive locations can encourage plant poaching (M. Bosch, U.S. Forest Service, pers. comm., 1997). For example, the Service designated critical habitat for the mountain golden heather (*Hudsonia montana*), a small shrub not previously known to be commercially valuable or particularly susceptible to collection or vandalism. After the critical habitat designation was published in the **Federal Register**, unknown persons visited a Forest Service wilderness area in North Carolina where the plants occurred and, with a recently published newspaper article and maps of the plant's critical habitat designation in hand, asked about the location of the plants. Several plants we had been monitoring were later found to be missing from unmarked Service study plots (Nora Murdock, U.S. Fish and Wildlife Service, pers. comm. 1998). Designating critical habitat, including the required disclosure of precise maps and descriptions of critical habitat, would further advertise the rarity of *T. howellii* ssp. *spectabilis* and provide a road map to occupied sites causing even greater threat to the species from vandalism, trampling, or unauthorized collection (M. Steenson, Portland Nursery Inc., pers. comm., 1997). Easily accessible roadside populations with few individuals would be particularly susceptible to indiscriminate collection by persons interested in rare plants. Plants, unlike most animal species protected under the Act, are particularly vulnerable to collection because of their inability to escape when sought by collectors.

In conclusion, we have weighed the lack of overall benefit of critical habitat designation beyond that provided by virtue of being listed as threatened or endangered along with the limited benefit of public notification against the detrimental effects of the negative public response and misunderstanding of what critical habitat designation means and the increased threats of illegal collection and vandalism, and have concluded that critical habitat designation is not prudent for *T. howellii* ssp. *spectabilis*.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain activities. Recognition through listing encourages public awareness and results in conservation actions by Federal, State

and private agencies, groups, and individuals. The Act provides for possible land acquisition and cooperation with the states and requires that recovery actions be carried out for all listed species. The protection required of Federal agencies and the prohibitions against certain activities involving listed plants are discussed, in part, below.

Section 7(a) of the Act requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened and with respect to its critical habitat, if any is designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402. Section 7(a)(4) of the Act requires Federal agencies to confer with us on any action that is likely to jeopardize the continued existence of a proposed species or result in destruction or adverse modification of proposed critical habitat. If a species is listed subsequently, section 7(a)(2) requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of such a species or to destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with us.

Federal agencies that may have involvement with *Thelypodium howellii* ssp. *spectabilis* through section 7 include the Corps and the Environmental Protection Agency through their permit authority under section 404 of the Clean Water Act. The Federal Housing Administration and Farm Services Agency may be affected through potential funding of housing and farm loans where this species or its habitat occurs. Highway construction and maintenance projects that receive funding from the Department of Transportation (Federal Highways Administration) will also be subject to review under section 7 of the Act.

The Act and its implementing regulations set forth a series of general prohibitions and exceptions that apply to all threatened plants. All prohibitions of section 9(a)(2) of the Act, implemented by 50 CFR 17.71 for threatened plants, apply. These prohibitions, with respect to any endangered or threatened species of plants, in part, make it illegal for any person subject to the jurisdiction of the United States to import or export, transport or ship in interstate or foreign commerce in the course of a commercial activity, sell or offer for sale in interstate or foreign commerce, or remove and

reduce to possession from areas under Federal jurisdiction. Seeds from cultivated specimens of threatened plant taxa also are exempt from these prohibitions provided that a statement "Of Cultivated Origin" appears on the shipping containers. Certain exceptions apply to agents of the Service and State conservation agencies.

The Act and 50 CFR 17.72 also provide for the issuance of permits to carry out otherwise prohibited activities involving threatened plant species under certain circumstances. Such permits are available for scientific purposes and to enhance the propagation or survival of the species. For threatened plants, permits also are available for botanical or horticultural exhibition, educational purposes, or special purposes consistent with the purposes of the Act. We anticipate few trade permits would ever be sought or issued for the species because the plant is not common in cultivation or in the wild.

It is the policy of the Service, published in the **Federal Register** on July 1, 1994 (59 FR 34272), to identify, to the maximum extent practicable at the time a species is listed, those activities that would or would not constitute a violation of section 9 of the Act. The intent of this policy is to increase public awareness of the effects of the listing on proposed and ongoing activities within the species' range. Collection, damage or destruction of this species on Federal land is prohibited, although in appropriate cases a Federal permit could be issued to allow collection for scientific or recovery purposes. However, *T. howellii* ssp. *spectabilis* is not known to occur on public (Federal) lands. We believe that, based upon the best available information, the following actions will not result in a violation of section 9, provided these activities are carried out in accordance with existing regulations and permit requirements:

(1) Activities authorized, funded, or carried out by Federal agencies (if the species were found on Federal lands), (e.g., grazing management, agricultural conversions, wetland and riparian habitat modification, flood and erosion control, residential development, recreational trail development, road construction, hazardous material containment and cleanup activities, prescribed burns, pesticide/herbicide application, pipelines or utility lines crossing suitable habitat,) when such activity is conducted in accordance with any reasonable and prudent measures given by the Service in a consultation conducted under section 7 of the Act;

(2) Casual, dispersed human activities on foot or horseback (e.g., bird watching, sightseeing, photography, camping, hiking);

(3) Activities on private lands that do not require Federal authorization and do not involve Federal funding, such as grazing management, agricultural conversions, flood and erosion control, residential development, road construction, and pesticide/herbicide application when consistent with label restrictions;

(4) Residential landscape maintenance, including the clearing of vegetation around one's personal residence as a fire break.

We believe that the following might potentially result in a violation of section 9; however, possible violations are not limited to these actions alone:

(1) Unauthorized collecting of the species on Federal lands (if the species were to occur on Federal lands);

(2) Application of pesticides/herbicides in violation of label restrictions;

(3) Interstate or foreign commerce and import/export without previously obtaining an appropriate permit. Permits to conduct activities are available for purposes of scientific research and enhancement of propagation or survival of the species.

Questions regarding whether specific activities may constitute a violation of section 9 should be directed to the Field Supervisor of the Snake River Basin Office (see **ADDRESSES** section). Requests for copies of the regulations on listed plants and inquiries regarding them may be addressed to the U.S. Fish and Wildlife Service, Ecological Services, Permits Branch, 911 NE 11th Ave., Portland, Oregon 97232-4181 (503/231-6241).

National Environmental Policy Act

The Service has determined that an Environmental Assessment, as defined under the authority of the National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted pursuant to section 4(a) of the Endangered Species Act, as amended. A notice outlining our reasons for this determination was published in the **Federal Register** on October 25, 1983 (48 FR 49244).

Paperwork Reduction Act

This rule does not contain any information collection requirements for which the Office of Management and Budget (OMB) approval under the Paperwork reduction Act, 44 U.S.C. 3501 *et seq.* is required. An information collection related to the rule pertaining to permits for endangered and

threatened species has OMB approval and is assigned clearance number 1018-0094. This rule does not alter that information collection requirement. For additional information concerning permits and associated requirements for threatened species, see 50 CFR 17.32.

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Author. The primary author of this final rule is Edna Rey-Vizgirdas, U.S. Fish and Wildlife Service, Snake River Basin Office (see **ADDRESSES** section); telephone 208/378-5243.

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, Transportation.

Regulation Promulgation

Accordingly, amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations as set forth below:

PART 17—[AMENDED]

1. The authority citation for part 17 continues to read as follows:

Authority: 16 U.S.C. 1361–1407; 16 U.S.C. 1531–1544; 16 U.S.C. 4201–4245; Pub. L. 99–625, 100 Stat. 3500, unless otherwise noted.

2. Amend section 17.12(h) by adding the following, in alphabetical order under FLOWERING PLANTS to the List

of Endangered and Threatened Plants to read as follows:

§ 17.12 Endangered and threatened plants.

* * * * *

(h) * * *

Species		Historic range	Family name	Status	When listed	Critical habi- tat	Special rules
Scientific name	Common name						
*	*	*	*	*		*	*
FLOWERING PLANTS							
*	*	*	*	*		*	*
<i>Thelypodium howellii</i> ssp. <i>spectabilis</i> .	Howell's spectacular thelypody.	U.S.A. (OR)	Brassicaceae mus- tard.	T	662	NA	NA

Dated: April 28, 1999.

Jamie Rappaport Clark,

Director, U.S. Fish and Wildlife Service.

[FR Doc. 99–13249 Filed 5–25–99; 8:45 am]

BILLING CODE 4310–55–P

DEPARTMENT OF THE INTERIOR**Fish and Wildlife Service****50 CFR Part 17**

RIN 1018–AE25

Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for the Plant *Eriogonum apricum* (inclusive of vars. *apricum* and *prostratum*) (lone buckwheat) and Threatened Status for the Plant *Arctostaphylos myrtifolia* (lone Manzanita)

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: We determine endangered status pursuant to the Endangered Species Act of 1973, as amended (Act), for *Eriogonum apricum* (inclusive of vars. *apricum* and *prostratum*) (lone buckwheat). We also determine threatened status for *Arctostaphylos myrtifolia* (lone manzanita). These two species occur primarily on soils derived from the Ione Formation in Amador and/or Calaveras counties in the central Sierra Nevada foothills of California and are imperiled by one or more of the following factors—mining, clearing of vegetation for agriculture and fire protection, disease, inadequate regulatory mechanisms, habitat fragmentation, residential and commercial development, changes in fire frequency, and continued erosion due to prior off-road vehicle use. Existing regulatory mechanisms do not adequately protect these species.

Random events increase the risk to the few, small populations of *E. apricum*. This action implements the protection of the Act for these plants.

EFFECTIVE DATE: June 25, 1999.

ADDRESSES: The complete file for this rule is available for inspection, by appointment, during normal business hours at the U.S. Fish and Wildlife Service, Sacramento Field Office, 3310 El Camino Avenue, Suite 130, Sacramento, California 95821–6340.

FOR FURTHER INFORMATION CONTACT: Kirsten Tarp (telephone 916/979–2120) and/or Jason Davis (telephone 916/979–2749), staff biologists at the above address (facsimile 916/979–2723).

SUPPLEMENTARY INFORMATION:**Background**

Arctostaphylos myrtifolia (lone manzanita), *Eriogonum apricum* var. *apricum* (lone buckwheat), and *Eriogonum apricum* var. *prostratum* (Irish Hill buckwheat) are found primarily in western Amador County, about 70 kilometers (km) (43.5 miles (mi)) southeast of Sacramento in the central Sierra Nevada foothills of California. Most populations occur at elevations between 90 and 280 meters (m) (295 and 918 feet (ft)). A few isolated occurrences of *A. myrtifolia* occur in adjacent northern Calaveras County.

Both species included in this rule occur primarily on “lone soils” which have developed along a 40 mile stretch of the Ione Formation. The Ione Formation, comprised of a unique Tertiary Oxisol, consisting of fluvial (stream or river produced), estuarine, and shallow marine deposits (Bureau of Land Management (BLM) 1989), was developed under a subtropical or tropical climate during the Eocene (35–57 million years ago). The Ione soils in the area are coarse-textured and exhibit soil properties typical of those produced

under tropical climates such as high acidity, high aluminum content, and low fertility (Singer 1978). These soils and the sedimentary deposits with which they are associated also contain large amounts of commercially valuable minerals including quartz sands, kaolinitic (containing a hydrous silicate of aluminum) clays, lignite (low-grade coal), and possible gold-bearing gravels (Chapman and Bishop 1975). The nearest modern-day relatives to these soils occur in Hawaii and Puerto Rico (Singer 1978).

The vegetation in the Ione area is distinctive enough to be designated as “lone chaparral” in a classification of plant communities in California (Holland 1986). Stebbins (1993) characterized the lone chaparral as an ecological island, which he defined as a relatively small area with particular climatic and ecological features that differ significantly from surrounding areas. This plant community occurs only on very acidic, nutrient-poor, coarse soils, and is comprised of low-growing, heath-like shrubs and scattered herbs (Holland 1986). The dominant shrub is *Arctostaphylos myrtifolia*, which is narrowly endemic to the area. Lone chaparral is restricted in distribution to the vicinity of Ione in Amador County, and a few local areas of adjacent northern Calaveras County where the community is estimated to cover 2,430 hectares (ha) (6,002 acres (ac)) (California Natural Diversity Database (CNDDB) 1997). The endemic plants that grow here are thought to do so because they can tolerate the acidic, nutrient-poor conditions of the soil which exclude other plant species. The climate of the area may be moderated by its location due east of the Golden Gate (Gankin and Major 1964, Roof 1982).

Discussion of the Two Species

Charles Parry (1887) described *Arctostaphylos myrtifolia* based upon

Appendix B. Summary of Agency and Public Comments on the Draft Recovery Plan for Howell's Spectacular Thelypody

I. Background

We listed Howell's spectacular thelypody as a federally threatened species in June 1999, under the Endangered Species Act of 1973, as amended. The draft recovery plan for Howell's spectacular thelypody was published in April 2001 and released for a 60-day comment period, which ended June 25, 2001. Over 70 copies of the draft recovery plan were sent out for review during the comment period. Copies were sent to Federal, State, and local government offices, Federal and State agencies, conservation organizations, industry groups, professional scientific organizations, local media, local libraries, and interested parties. The draft recovery plan was also peer reviewed by eight experts for their input on technical accuracy.

Comments from peer reviewers were incorporated, as appropriate, into this final recovery plan, and will not be discussed further here. One comment letter was received from the general public. The person thought the recovery plan was sound, but raised four issues they thought should be addressed. We have reviewed these issues and have determined they are not substantive and do not require revisions to this plan. These issues will be listed and briefly responded to below. This comment letter is on file at the U.S. Fish and Wildlife Service's Boise Field Office, 1387 S. Vinnell Way, Room 368, Boise, Idaho 83709.

II. Summary of Issues and Service Responses

Issue 1: "Funding should be controlled."

Response: The plan's estimates of costs for each task are to be used for planning purposes only. These numbers do not represent any commitment of funds by any of the parties listed. We recommend that the recovery tasks, implementation schedule, and costs listed in this plan be used by each agency in the development of management plans and budgets, however, we expect that these cost items will be revised to meet actual on-the-ground estimates for completion of work. Federal agency budgets are appropriated by Congress, and variation from year to year cannot

be controlled. The cost figures in this plan will guide agencies in their budget request process, but there is no guarantee as to the final funding allocation for thelypody recovery programs.

Issue 2: “Is there Oregon Department of Transportation (ODOT) field guidance on controlling activities in marked areas of the roadway? (There is a move within ODOT to open roadsides to farming. This is especially true in Umatilla, Union, and Baker County area.)”

Response: We contacted ODOT and were told there is no field guidance within the agency to open roadsides to farming and/or ranching. They indicated it would not be economical to do so, as the cost of relocating fencelines would not be offset by the minimal increase of farmable acreage from road right-of ways. Regarding ODOT guidance for protection of thelypody in road right-of-ways, ODOT has marked three thelypody sites and does not spray or perform road maintenance activities near these sites. The Baker County Weed Supervisor indicated the county Noxious Weed Control Plan has adopted the ODOT guidance for avoidance of impacts to thelypody. Thelypody populations in road right-of-ways have been marked and the spray contractors have been informed of their locations and directed not to spray in the marked areas. In 2002, the locations will be recorded with Global Positioning Systems (GPS) units, and this information will be programmed into spray trucks so they will automatically shut off near thelypody sites. Baker County also advocates protection of thelypody to local ranchers in their outreach efforts for noxious weed control and spraying.

Issue 3: “Confined animal feedlot operation (CAFO) construction. Is there a field directive on CAFO construction issued within Oregon Department of Agriculture?”

Response: Oregon Department of Agriculture (ODA) has a CAFO program, but there is currently no CAFO construction in Baker or Union Counties. According to the CAFO Program Administrator, there is no indication of interest in this program in these Counties. The administrator is aware of theylpody issues in Baker and Union Counties and will address potential impacts through the CAFO permitting process, if there is future interest and application for CAFO construction in these Counties.

Issue 4: “In the Burnt River Drainage, a move is afoot to build two dams, one on the North Fork Burnt River and one on the South Fork Burnt River. Depending upon the politics in Baker County this could impact one of the referenced sites. Are you working with Oregon Department of State Lands?”

Response: Yes. There currently is interest by the Burnt River Irrigation District to establish two reservoirs by damming the North and South Forks of the Burnt River, however, there is no official proposal or application for a permit to date. Land ownership of the proposed impoundment areas is mixed; private, Forest Service, and Bureau of Land Management. According to the Oregon Department of Water resources, it is uncertain if and when construction of these dams will be pursued. Regarding potential impacts to thelypody, there are no historic or current thelypody populations in areas that would be impacted by the impoundments, should the dams be constructed. Thelypody is associated with greasewood habitats and there are no such habitats in these areas because the elevation is too high.